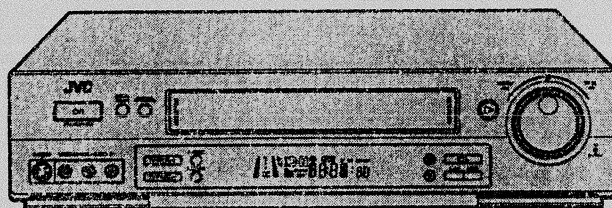
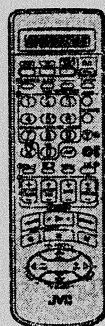


JVC

SERVICE MANUAL

VIDEO CASSETTE RECORDER

HR-S7600EU/S7611EU



Hi-Fi S VHS
625
SHOWVIEW

SPECIFICATIONS

GENERAL

Power requirement	: AC 220 – 240 V~, 50/60 Hz
Power consumption	
Power on	: 24 W
Power off	: 5.5 W
Temperature	
Operating	: 5°C to 40°C
Storage	: -20°C to 60°C
Operating position	: Horizontal only
Dimensions (WxHxD)	: 400 x 94 x 347 mm
Weight	: 3.9 kg
Format	: S-VHS/VHS PAL standard
Maximum recording time	
(SP)	: 240 min. with E-240 video cassette
(LP)	: 480 min. with E-240 video cassette

VIDEO/AUDIO

Signal system	: PAL-type colour signal and CCIR monochrome signal, 625 lines 50 fields
Recording system	: DA4 (Double Azimuth) head helical scan system
Signal-to-noise ratio	: 45 dB
Horizontal resolution	: 250 lines (VHS) 400 lines (S-VHS)
Frequency range	: 70 Hz to 10,000 Hz (Normal audio) 20 Hz to 20,000 Hz (Hi-Fi audio)
Input/Output	: 21-pin SCART connectors : IN/OUT x 1, IN/DECODER x 1 RCA connectors: VIDEO IN x 1, AUDIO IN x 1, AUDIO OUT x 1 S-Video connectors: IN x 1, OUT x 1

TUNER/TIMER

TV channel storage capacity	: 99 positions (+AUX position)
Tuning system	: Frequency synthesized tuner
Channel coverage	: VHF 47 – 89/104 – 300/ 302 – 470MHz UHF 470 – 862MHz
Aerial output	: UHF channels 22 – 69 (Adjustable)
Memory backup time	: Approx. 60 min.

ACCESSORIES

Provided accessories	: RF cable, Infrared remote control unit, "R6" battery x 2
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*Specifications shown are for SP mode unless otherwise specified.
E.& O.E. Design and specifications subject to change without notice.*

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The following table lists the differing point between Models (HR-S7600EU and HR-S7611EU) in this series.

	HR-S7600EU	HR-S7611EU
COSMETIC (FRONT PANEL)	CHAMPAGNE	BLACK

Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

●Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the Δ symbol and shaded (■) parts are critical for safety. Replace only with specified part numbers.
Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.
Caution for continued protection against fire hazard. Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
1) Wires covered with PVC tubing
2) Double insulated wires
3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
1) Insulation Tape 3) Spacers 5) Barrier
2) PVC tubing 4) Insulation sheets for transistors

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

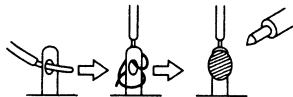


Fig.1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10-15 kg of force in any direction will not loosen it.



Fig.2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.

1) Connector part number : E03830-001

2) Required tool : Connector crimping tool of the proper type which will not damage insulated parts.

3) Replacement procedure

(1) Remove the old connector by cutting the wires at a point close to the connector.
Important : Do not reuse a connector (discard it).



Fig.3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

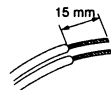


Fig.4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

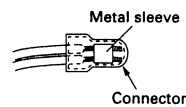


Fig.5

(4) As shown in Fig.6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

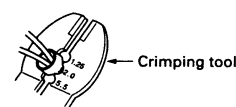


Fig.6

(5) Check the four points noted in Fig.7.

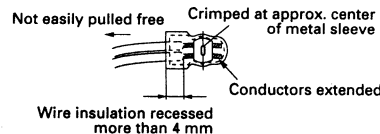


Fig.7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions. Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. Insulation resistance test

Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. Dielectric strength test

Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. Clearance distance

When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

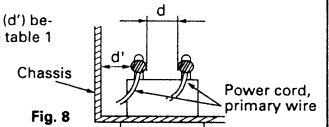


Fig. 8

4. Leakage current test

Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).

Measuring Method : (Power ON)

Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

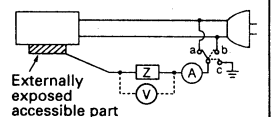


Fig. 9

5. Grounding (Class I model only)

Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).

Measuring Method:

Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

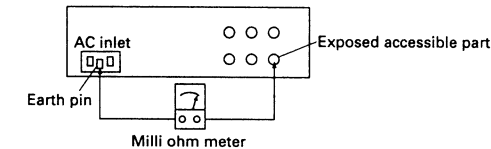


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	$Z \leq 0.1 \text{ ohm}$
Europe & Australia	$Z \leq 0.5 \text{ ohm}$

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	$R \geq 1 \text{ M}\Omega/500 \text{ V DC}$	AC 1 kV 1 minute	$d, d' \geq 3 \text{ mm}$
100 to 240 V			AC 1.5 kV 1 minute	$d, d' \geq 4 \text{ mm}$
110 to 130 V		$1 \text{ M}\Omega \leq R \leq 12 \text{ M}\Omega/500 \text{ V DC}$	AC 1 kV 1 minute	$d, d' \geq 3.2 \text{ mm}$
110 to 130 V	Europe & Australia	$R \geq 10 \text{ M}\Omega/500 \text{ V DC}$	AC 3 kV 1 minute (Class II)	$d \geq 4 \text{ mm}$
200 to 240 V			AC 1.5 kV 1 minute (Class I)	$d' \geq 8 \text{ mm (Power cord)}$ $d' \geq 6 \text{ mm (Primary wire)}$

Table 1 Specifications for each region

AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan		$i \leq 1 \text{ mA rms}$	Exposed accessible parts
110 to 130 V	USA & Canada		$i \leq 0.5 \text{ mA rms}$	Exposed accessible parts
110 to 130 V	Europe & Australia		$i \leq 0.7 \text{ mA peak}$	Antenna earth terminals
220 to 240 V			$i \leq 0.7 \text{ mA peak}$ $i \leq 2 \text{ mA dc}$	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

INSTRUCTIONS

2 EN

SAFETY FIRST

Safety Precautions

The rating plate and the safety caution are on the rear of the unit.

WARNING: DANGEROUS VOLTAGE INSIDE

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

CAUTION

- When you are not using the recorder for a long period of time, it is recommended that you disconnect the power cord from the mains outlet.
- Dangerous voltage inside. Refer internal servicing to qualified service personnel. To prevent electric shock or fire hazard, remove the power cord from the mains outlet prior to connecting or disconnecting any signal lead or aerial.

WARNING

There are two different types of SECAM colour systems: SECAM-L, used in FRANCE (also called SECAM-West), and SECAM-B, used in Eastern European countries (also called SECAM-East).

1. This recorder can also receive SECAM-B colour television signals for recording and playback.
2. Recordings made of SECAM-B television signals produce monochrome pictures if played back on a video recorder of SECAM-L standard, or do not produce normal colour pictures if played back on a PAL video recorder with SECAM-B system incorporated (even if the TV set is SECAM-compatible).
3. SECAM-L prerecorded cassettes or recordings made with a SECAM-L video recorder produce monochrome pictures when played back with this recorder.
4. This recorder cannot be used for the SECAM-L standard. Use a SECAM-L recorder to record SECAM-L signals.

IMPORTANT

- Please read the various precautions on page 2 and 3 before installing or operating the recorder.
- It should be noted that it may be unlawful to re-record pre-recorded tapes, records, or discs without the consent of the owner of copyright in the sound or video recording, broadcast or cable programme and in any literary, dramatic, musical, or artistic work embodied therein.

EN 3

For Italy:

"It is declared that this product, brand JVC, conforms to the Ministry Decree n. 548 of 28 Aug.'95 published in the Official Gazette of the Italian Republic n. 301 of 28 Dec.'95"

The STANDBY/ON ϕ /I button does not completely shut off mains power from the unit, but switches operating current on and off. " ϕ " shows electrical power standby and " I " shows ON.

Video tapes recorded with this video recorder in the LP (Long Play) mode cannot be played back on a single-speed video recorder.

Failure to heed the following precautions may result in damage to the recorder, remote control or video cassette.

1. **DO NOT** place the recorder . . .

- ... in an environment prone to extreme temperatures or humidity.
- ... in direct sunlight.
- ... in a dusty environment.
- ... in an environment where strong magnetic fields are generated.
- ... on a surface that is unstable or subject to vibration.

2. **DO NOT** block the recorder's ventilation openings.

3. **DO NOT** place heavy objects on the recorder or remote control.

4. **DO NOT** place anything which might spill on top of the recorder or remote control.

5. **AVOID** violent shocks to the recorder during transport.

MOISTURE CONDENSATION

Moisture in the air will condense on the recorder when you move it from a cold place to a warm place, or under extremely humid conditions—just as water droplets form in the surface of a glass filled with cold liquid. Moisture condensation on the head drum will cause damage to the tape. In conditions where condensation may occur, keep the recorder turned on for a few hours to let the moisture dry.

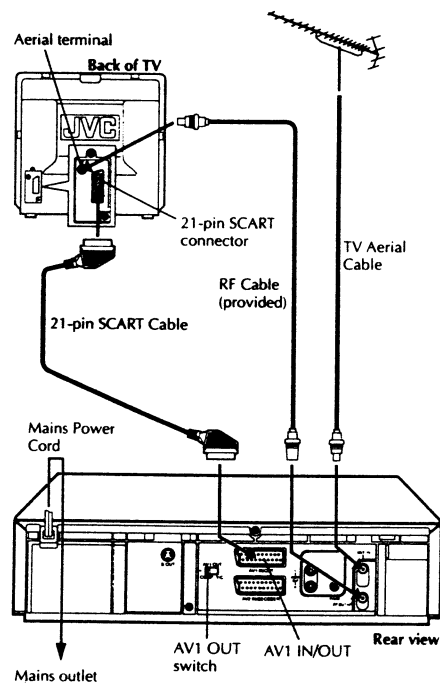
ABOUT HEAD CLEANING

Accumulation of dirt and other particles on the video heads may cause the playback picture to become blurred or interrupted. Be sure to contact your nearest JVC dealer if such troubles occur.

S-VHS **SHOWVIEW®**

- Cassettes marked "S-VHS" and "VHS" can be used with this video cassette recorder. However, S-VHS recordings are possible only with cassettes marked "S-VHS".
- SHOWVIEW is a registered trademark of Gemstar Development Corporation. The SHOWVIEW system is manufactured under licence from Gemstar Development Corporation.

Basic Connections



Make AV connection if your TV has a 21-pin AV input connector (SCART) in order to reduce the possibility of interference. And if you are using a stereo TV, you will need this cable in order to enjoy stereo playback of videotapes.

AV1 INPUT/OUTPUT SIGNAL SELECTION FOR AV CONNECTION

The AV1 IN/OUT connector accepts and delivers either a composite signal (regular video signal) or a Y/C signal (a signal in which the luminance and chrominance signals are separated). For input signal selection, select "VIDEO" (regular video signal) or "S-VIDEO" (Y/C signal) for "AV1 SELECT" setting (pg. 40). For output signal selection, use AV1 OUT switch of the rear panel.

- If your TV's 21-pin AV input connector (SCART) is compatible only with the regular video signal, set this switch to COMP.
- If your TV's 21-pin AV input connector (SCART) is compatible with the Y/C signal, set this switch to Y/C. You can obtain high-quality S-VHS pictures. (For connection, be sure to use a 21-pin SCART cable that is compatible with the Y/C signal.)

NOTES:

- Set your TV to the VIDEO (or AV), Y/C, or RGB mode according to the type of your TV's SCART connector.
- For switching the TV's mode, refer to the instruction manual of your television.
- To obtain high-quality S-VHS pictures, you can also use the S-VIDEO CONNECTION described on page 5.

It's essential that your video recorder be properly connected. Follow these steps carefully. THESE STEPS MUST BE COMPLETED BEFORE ANY VIDEO OPERATION CAN BE PERFORMED.

1 CHECK CONTENTS

Make sure the package contains all of the accessories listed in "Specifications" (pg. 66).

2 SITUATE RECORDER

Place the recorder on a stable, horizontal surface.

3 CONNECT RECORDER TO TV

The connection method you use depends on the type of TV you have.

RF CONNECTION

- To Connect To A TV With NO AV Input Terminals ...
 - a- Disconnect the TV aerial cable from the TV.
 - b- Connect the TV aerial cable to the ANT. IN jack on the rear panel of the recorder.
 - c- Connect the provided RF cable between the RF OUT jack on the rear panel of the recorder and the TV's aerial terminal.

AV CONNECTION

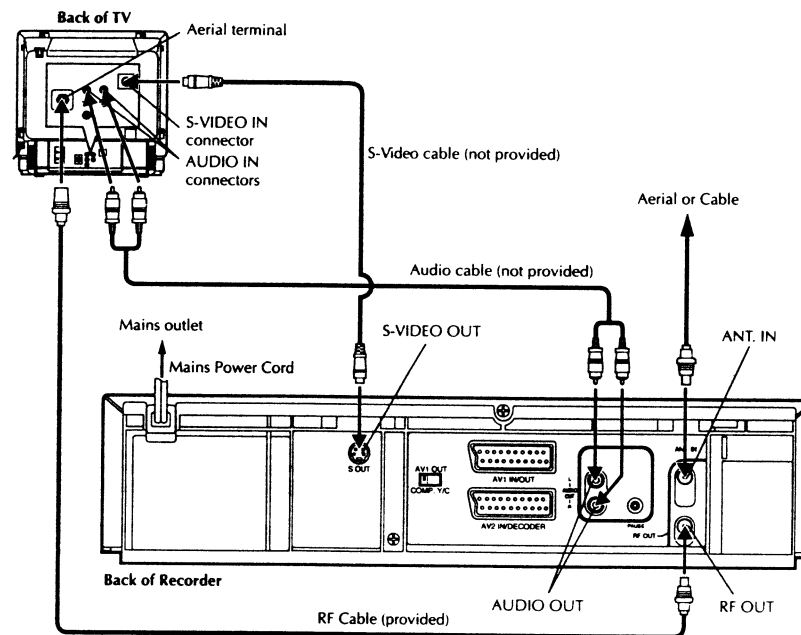
- To Connect To A TV With AV Input Terminals ...
 - a- Connect the aerial, recorder and TV as per "RF CONNECTION".
 - b- Connect an optional SCART cable between the AV1 IN/OUT socket on the rear panel of the recorder and the TV's 21-pin SCART connector.
 - c- Set the AV1 OUT switch to the appropriate position. See "AV1 INPUT/OUTPUT SIGNAL SELECTION FOR AV CONNECTION" below.

4 CONNECT RECORDER TO MAINS

Plug the end of the mains power cord into a mains outlet.

After you plug the mains power cord into a mains outlet, the Country Set display appears on the TV screen and/or on the recorder's front display panel when the ψ /I button on the recorder/remote control is pressed for the first time to power on the recorder; go to page 6 to perform Auto Set Up.

S-VIDEO Connection



- To Connect to A TV With S-VIDEO/AUDIO IN Connectors ...

1 CONNECT RECORDER TO TV

- a- Connect the aerial, recorder and TV as per "RF CONNECTION" (pg. 4).
- b- Connect the recorder's S-VIDEO OUT connector to the TV's S-VIDEO IN connector.
- c- Connect the recorder's AUDIO OUT connectors to the TV's AUDIO IN connectors.

2 CONNECT RECORDER TO MAINS

Plug the end of the mains power cord into a mains outlet.

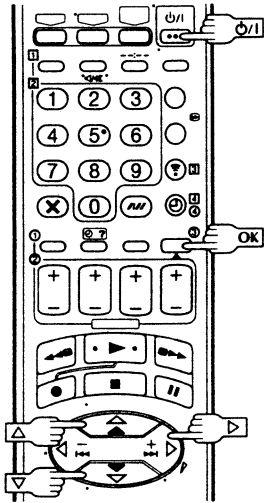
After you plug the mains power cord into a mains outlet, the Country Set display appears on the TV screen and/or on the recorder's front display panel when the ψ /I button on the recorder/remote control is pressed for the first time to power on the recorder; go to page 6 to perform Auto Set Up.

NOTES:

- You can obtain high-quality S-VHS pictures.
- If your television is not stereo-capable, use the recorder's AUDIO OUT connectors to connect to an audio amplifier for Hi-Fi stereo sound reproduction. (pg. 47)
- To operate the recorder with your TV using the S-VIDEO connection, set your TV to the VIDEO (or AV mode).
- For switching the TV's mode, refer to the instruction manual of your television.

Auto Set Up

Auto Channel Set/Auto Clock Set/Auto Guide Program Number Set



International Telephone Country Code

BELGIUM	:32	NORGE	:47
ČESKÁ REPUBLIKA	:42	ÖSTERREICH	:43
DANMARK	:45	POLSKA	:48
DEUTSCHLAND	:49	PORTUGAL	:351
ESPAÑA	:34	SUISSE	:41
GREECE	:30	SUOMI	:358
ITALIA	:39	SVERIGE	:46
MAGYARORSZÁG	:36	OTHER WESTERN EUROPE	---
NEDERLAND	:31	OTHER EASTERN EUROPE	:EE

ATTENTION

Once you have performed Auto Set Up, even if the recorder's memory backup has expired, all the stored stations and their Guide Program numbers remain in the recorder's memory and the recorder will not perform Auto Set Up again. You only need to set the clock. (☞ pg. 56)

If you have moved to a different area, perform each setting as required.

- Video Channel setting (for RF connection users) ☞ pg. 55
- Tuner setting ☞ pg. 48
- Clock setting ☞ pg. 56

If a new station starts broadcasting in your area, perform tuner setting (☞ pg. 48) and, if necessary, video channel setting. (☞ pg. 55)

When the ψ/I button on the recorder/remote control is pressed for the first time to power on the recorder after you plug the mains power cord into a mains outlet, the Country Set display will appear on the TV screen and the recorder's front display panel. By simply selecting your country*, the Auto Set Up function sets the tuner channels, clock** and Guide Program numbers automatically.

* If you live in Belgium (BELGIUM) or Switzerland (SUISSE), you also need to select your language.

** If you live in Hungary (MAGYARORSZAG), Czech Republic (ČESKÁ REPUBLIKA), Poland (POLSKA) or other countries in Eastern Europe (OTHER EASTERN EUROPE): set the clock manually.

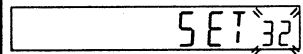
You can refer to the front display panel and/or the on-screen display to perform this procedure.

Before starting, make sure of the following:

- The TV aerial cable should be connected to the recorder.
- The recorder's mains power cord should be connected to a mains outlet.
- If you want to use the on-screen display, the TV should be set to its AV mode (with AV or S-VIDEO connection ☞ pg. 4 or 5) or UHF channel 36 (with RF connection ☞ pg. 4).

1 TURN ON THE RECORDER

Press ψ/I on the recorder or remote control. The Country Set display appears on the front display panel and/or on the screen.



NOTE:

If you have connected your TV to the recorder with RF connection and the on-screen display appearing on UHF channel 36 looks distorted, perform "Video Channel Set" on page 55.

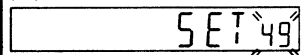


2 SELECT COUNTRY

If you are referring to the front display panel

Press $\Delta\nabla$ to select your international telephone country code of your country referring to the chart in the left column.

(Ex.) DEUTSCHLAND is selected



If you are referring to the on-screen display

Press $\Delta\nabla$ to move the highlight bar (pointer) to your country's name.

NOTE:

If you have selected BELGIUM (32) or SUISSE (41), go to step 3. If you have selected MAGYARORSZÁG (36), ČESKÁ REPUBLIKA (42), POLSKA (48) or OTHER EASTERN EUROPE (EE), press OK. The Clock Set screen will appear. Set the clock manually ☞ pg. 56 - 57, then go to step 4. If you have selected any other country name (code), go to step 4.



3 SELECT LANGUAGE

Press OK. The Language Set display appears on the front display panel and/or on the screen.

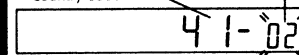
If you are referring to the front display panel

Press $\Delta\nabla$ to select your language code.

Language Code			
ENGLISH	:01	NEDERLANDS	:06
DEUTSCH	:02	SVENSKA	:07
FRANCAIS	:03	NORSK	:08
ITALIANO	:04	SUOMI	:09
CASTELLANO	:05	DANSK	:10

(Ex.) DEUTSCH is selected for SUISSE

International telephone country code Language code



If you are referring to the on-screen display

Press $\Delta\nabla$ to move the highlight bar (pointer) to the language of your choice.



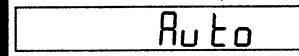
(Ex.) DEUTSCH is selected

4 PERFORM AUTO SET UP

Press OK.

If you are referring to the front display panel

Press $\Delta\nabla$ to select "Auto" and press OK or $\triangleright$.



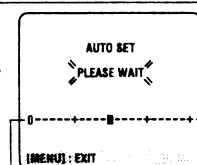
If you are referring to the on-screen display

Press $\Delta\nabla$ to move the highlight bar (pointer) to "AUTO SET" and press OK or $\triangleright$.



"Auto" blinks on the display panel; do NOT press any button on the recorder or remote control until the display panel shows either the display as illustrated on page 9 or "----".

- If you are using the on-screen display, the AUTO SET screen will appear. As Auto Set Up progresses, the "■" mark on the screen moves from left to right.



Beginning

End

- If "----" appears on the display panel, refer to page 9.

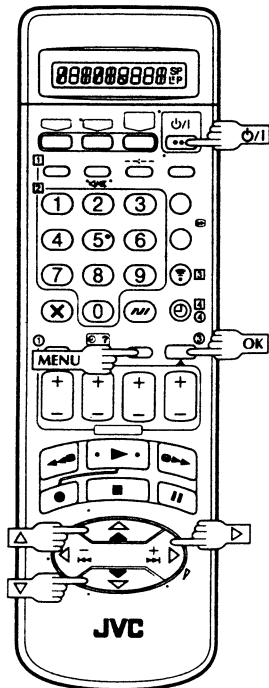
NOTES:

- Auto channel set function takes place first; it assigns automatically all receivable stations in your area.
- Auto clock set function sets the clock automatically by reading the clock setting data from a station transmitting a PDC signal while auto channel set is being performed.
- During auto channel set, the recorder recognizes each station name of the detected stations and stores them in the recorder's memory, then automatically sets ShowView assigned Guide Program number for those stations according to the broadcast area.
- In the area where no TV station transmits a PDC signal, the recorder can perform neither auto clock set nor auto Guide Program number set.
- If there is a power cut, or if you press ψ/I or MENU while Auto Set Up is in progress, Auto Set Up will be interrupted; be sure to turn off the recorder power once and try again from step 1.
- Auto clock may not function properly depending on the reception condition.

Preset Download

You can use this function only with the TV offering T-V Link, etc.*

* Compatible with TVs offering T-V Link, EasyLink, Megalogic, SMARTLINK, Q-Link, DATA LOGIC or NEXTVIEWLINK via fully-wired 21-pin SCART cable. The degree of compatibility and available functions may differ by system.



When you connect the recorder and your TV via fully-wired 21-pin SCART cable (⇨ pg. 4), you can set the recorder's tuner channels by downloading preset data from your TV instead of using the Auto Set Up function (⇨ pg. 6). After downloading is completed, the recorder sets the clock and Guide Program number automatically. For details, refer to the instruction manual for your TV.

Perform steps 1 to 3 of "Auto Set Up" on page 6 and 7 before continuing.

PERFORM PRESET DOWNLOAD

Press OK.

If you are referring to the front display panel

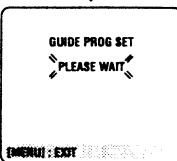
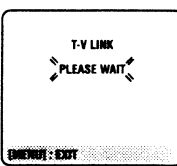
Press Δ / ∇ to select "CH --" and press OK or $\triangleright$.

If you are referring to the on-screen display

Press Δ / ∇ to move the highlight bar (pointer) to "T-V LINK" and press OK or $\triangleright$.

Preset position on the display panel increases from "CH1"; do NOT press any button on the recorder or remote control until the display panel shows either the display as illustrated on page 9 or "--:--:--".

- If "--:--:--" appears on the display panel, refer to page 9.
- If you are using the on-screen display, the T-V LINK screen will appear. Then the GUIDE PROG SET screen will appear during Guide Program number set.
- If you press any button on the recorder or remote control while downloading is in progress, it will be interrupted.



SET VIDEO CHANNEL

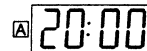
Set the Video Channel to off manually. (⇨ pg. 55)

2

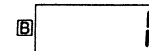
NOTES:

- In the area where no TV station transmits a PDC signal, the recorder can perform neither auto clock set nor auto Guide Program number set.
- If there is a power cut, or if you press ϕ /I or MENU while downloading or set up is in progress, it will be interrupted; be sure to turn off the recorder power once and try again from the beginning.
- Auto clock may not function properly depending on the reception condition.
- When you perform T-V LINK function, be sure to use fully-wired 21-pin SCART cable.
- On this recorder, the characters available for station's name (ID) are A-Z, 0-9, -, *, + and (space). Some downloaded station's name may differ from those of your TV (⇨ pg. 52).

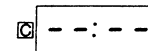
Results of Auto Set Up/Preset Download appear on the front display panel



When both auto channel set and auto clock set have been completed successfully the correct current time will be displayed after the OK button is pressed in step 4 on page 7 or in step 1 on page 8.



When auto channel set has been completed successfully but auto clock set has not, "1" (channel position) will be displayed after the OK button is pressed in step 4 on page 7 or in step 1 on page 8.



When neither auto channel set nor auto clock set has been completed successfully, "--:--:--" will be displayed.

You can check if the Guide Program numbers have been set correctly when you perform ShowView Timer Programming (⇨ pg. 26); if the correct channel position number is displayed in step 3, this confirms that the Guide Program number for the ShowView number you enter in step 2 has been set correctly.

A If both auto channel set and auto clock set have been performed successfully:

- 1 Turn on the TV and select its VIDEO channel or AV mode, then make sure that all necessary stations have been stored in the recorder's memory by using the TV PROG button(s).
 - If station names (ID — ⇨ pg. 53) have also been stored in the recorder's memory, the station name will be displayed at the top left corner of the screen for about 5 seconds when the recorder is tuned to a different station.
 - If you want to set the tuner manually such as to add or skip channels, to change channel positions, or to set or change station names, see pages 50 – 54.

B If auto channel set has succeeded but auto clock set has not:

- 1 Turn on the TV and select its VIDEO channel or AV mode, then make sure that all necessary stations have been stored in the recorder's memory by using the TV PROG button(s).
 - If station names (ID — ⇨ pg. 53) have also been stored in the recorder's memory, the station name will be displayed at the top left corner of the screen for about 5 seconds when the recorder is tuned to a different station.
 - If you want to set the tuner manually such as to add or skip channels, to change channel positions, or to set or change station names, see pages 50 – 54.
- 2 Perform "Clock Set" on page 56.

C If both auto channel set and auto clock set have failed:

- 1 Make sure the TV aerial cable is connected properly to the recorder and turn off the recorder power once, then turn the recorder power back on again.
 - The Country Set display appears on the front display panel and/or on the screen; perform steps 2 – 4 on pages 6 – 7 again or perform the procedure on page 8.

IMPORTANT

- In certain reception conditions, station names may not be stored correctly, and auto Guide Program Number Set may not work properly. If the Guide Program numbers are not set properly, when you timer-record a TV programme using ShowView, the recorder will record a TV programme of a different station. When programming the timer using ShowView, be sure to check whether the channel position on which your recorder receives the broadcasting station you wish to record is selected (⇨ pg. 26, "ShowView Timer Programming").
- Your video recorder memorizes all detected stations even if reception of some of them is poor. In these cases picture quality may be poor. To delete those stations with an unacceptable picture ⇨ "Delete A Channel" on page 51.

INFORMATION

Language for the on-screen display

Auto Set Up also selects the language automatically for the on-screen display depending on the Country setting you have made in step 2 on page 6 (unless you have selected BELGIUM or SUISSE), as shown below.

SUOMI	→ SUOMI	DANMARK	→ DANSK	NEDERLAND	→ NEDERLANDS
PORTUGAL	→ ENGLISH	ÖSTERREICH	→ DEUTSCH	GREECE	→ ENGLISH
DEUTSCHLAND	→ DEUTSCH	ČESKÁ REPUBLIKA	→ ENGLISH	OTHER WESTERN EUROPE	→ ENGLISH
POLSKA	→ ENGLISH	ITALIA	→ ITALIANO	OTHER EASTERN EUROPE	→ ENGLISH
NORGE	→ NORSK	MAGYARORSZÁG	→ ENGLISH		
SVERIGE	→ SVENSKA	ESPAÑA	→ CASTELLANO		

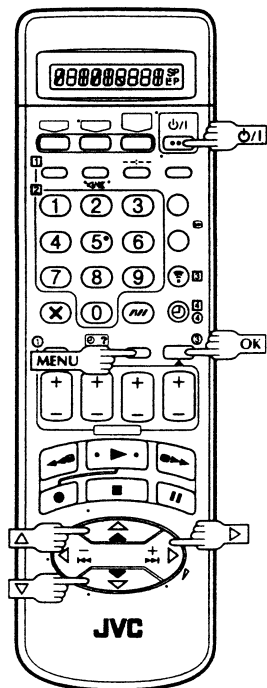
If you want to change the language setting manually, ⇨ "Language" on page 10.

Just Clock

Your recorder is equipped with the Just Clock function which provides accurate time keeping through automatic adjustments at regular intervals, by reading data from a PDC signal. If you want to take advantage of this function, simply set it to "ON". ⇨ "Just Clock" on page 56.

Language

Turn on the TV and select the VIDEO channel (or AV mode).



This recorder offers you the choice to view on-screen messages in 10 different languages. Though Auto Set Up selects the language automatically (see pg. 9), you can change the language setting manually using this procedure as required.

1 TURN ON THE RECORDER

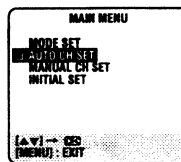
Press ϕ/I .

2 ACCESS MAIN MENU

Press MENU.

3 ACCESS COUNTRY SET SCREEN

Press Δ/∇ to move the highlight bar (pointer) to "AUTO CH SET", then press OK or $\triangleright$.



4 SELECT COUNTRY

Press Δ/∇ to move the highlight bar (pointer) to your country's name, then press OK or $\triangleright$.

5 SELECT LANGUAGE

Press Δ/∇ to move the highlight bar (pointer) to the language of your choice.

• You do not have to press OK; pressing OK enters Auto Set/T-V LINK screen.

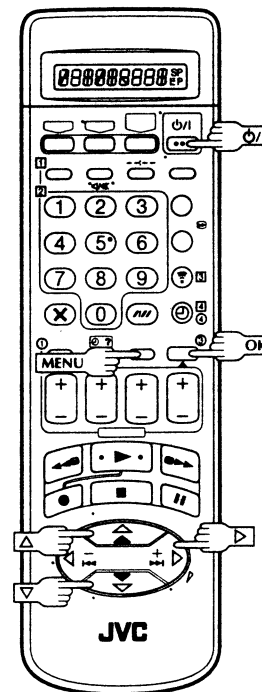


6 RETURN TO NORMAL SCREEN

Press MENU.

On-Screen Displays

Turn on the TV and select the VIDEO channel (or AV mode).



You can choose whether or not to have various operational indicators appear on screen, by setting this function ON or OFF. Messages appear in the selected language (see pg. 9 or 10).

1 TURN ON THE RECORDER

Press ϕ/I .

2 ACCESS MAIN MENU SCREEN

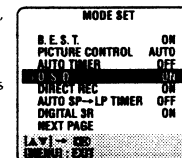
Press MENU.

3 ACCESS MODE SET SCREEN

Move the highlight bar (pointer) to "MODE SET" by pressing Δ/∇ , then press OK or $\triangleright$.

4 ENABLE/DISABLE ON-SCREEN DISPLAY

The default setting is "ON", so if you want on-screen displays, leave the setting as it is and go to step 5. If you don't want the displays to appear, press Δ/∇ to move the highlight bar (pointer) to "O.S.D." and press OK or $\triangleright$ to set "O.S.D." to "OFF".



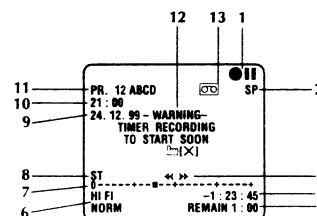
5 RETURN TO NORMAL SCREEN

Press MENU.

NOTES:

- When you use this recorder as the player for editing, be sure to set "O.S.D." to "OFF" before starting.
- During playback, the operation mode indicators may be disturbed depending on the type of tape being used.

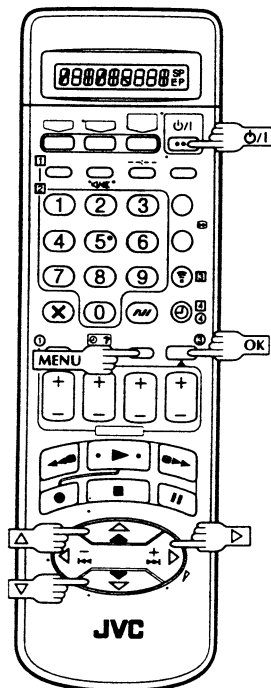
The superimposed indication on the TV screen tells you what the recorder is doing.



- 1- Operation mode indicators
- 2- Tape speed SP/LP/EP (EP is for NTSC playback only)
- 3- Tape direction
- 4- Counter display
- 5- Tape remaining time indicator (see pg. 21)
- 6- Audio mode display (see pg. 19)
- 7- Tape position indicator (see pg. 15)
- 8- Type of Broadcast (see pg. 23)
- 9- Current day/month/year
- 10- Clock display
- 11- Channel position number and station name/Aux. indicator (L-1, L-2, F-1 or S-1)
- 12- Timer warning display (see pg. 27, 29)
- 13- Cassette loaded mark

Power Save Mode

Turn on the TV and select the VIDEO channel (or AV mode).



You can reduce the power consumption while the recorder is turned off.

- 1 **TURN ON THE RECORDER**
Press ϕ/I .
- 2 **ACCESS MAIN MENU SCREEN**
Press MENU.
- 3 **ACCESS MODE SET SCREEN**
Press Δ/∇ to move the highlight bar (pointer) to "MODE SET", then press OK or $\triangleright$.
- 4 **SELECT POWER SAVE MODE**
Press Δ/∇ to move the highlight bar (pointer) to "POWER SAVE", then press OK or $\triangleright$ to set to "ON".
- 5 **RETURN TO NORMAL SCREEN**
Press MENU.

NOTES:

- During Power Save, the display panel will be turned off.
- The Just Clock function (pg. 36) does not work while the Power Save mode is engaged.
- While the recorder is in the Power Save mode, the picture may be distorted momentarily when you turn on/off the recorder.
- Power Save does not work when ...
 - ... the recorder is in the Timer mode.
 - ... the recorder's power is turned off after timer-recording (or Instant Timer Recording).
 - ... the Auto Satellite Prog. Recording mode is engaged (pg. 33).
 - ... "AV2 SELECT" is set to "DECODER" or "SAT" (pg. 40).

T-V Link Functions

When you connect the recorder and your TV via fully-wired 21-pin SCART cable (pg. 4), the following functions are available. You can use these functions only with the TV offering T-V Link, etc.*

For details, refer to the instruction manual for your TV.

* Compatible with TVs offering T-V Link, EasyLink, Megalogic, SMARTLINK, Q-Link, DATA LOGIC or NEXTVIEWLINK via fully-wired 21-pin SCART cable. The degree of compatibility and available functions may differ by system.

NextView Link

You can download the EPG (Electronic Programme Guide) information from your TV for timer-programming on the recorder.

For details, refer to the instruction manual for your TV.

TV Auto Power On

You can turn on the TV and set it to video mode automatically whenever you play a tape.

For details, refer to the instruction manual for your TV.

VCR Auto Standby

You can use your TV's remote control to turn off the recorder. For details, refer to the instruction manual for your TV.

Direct Rec

You can start recording the programme that you are watching on your TV with simple operation. Press and hold **RECORD** and press **PLAY** on the remote control, or press **RECORD** on the recorder.

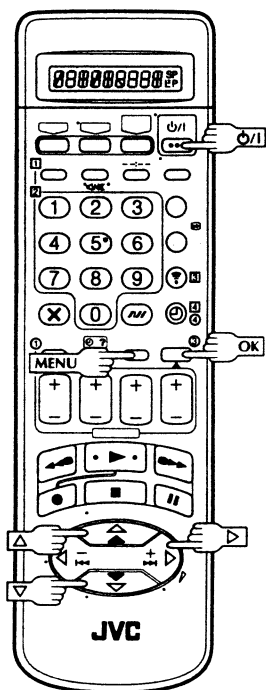
Follow the procedure below to use this function.

- 1 **TURN ON THE RECORDER**
Press ϕ/I .
- 2 **ACCESS MAIN MENU SCREEN**
Press MENU.
- 3 **ACCESS MODE SET SCREEN**
Press Δ/∇ to move the highlight bar (pointer) to "MODE SET", then press OK or $\triangleright$.
- 4 **SELECT DIRECT REC MODE**
Press Δ/∇ to move the highlight bar (pointer) to "DIRECT REC", then press OK or $\triangleright$ to set to "ON".
- 5 **RETURN TO NORMAL SCREEN**
Press MENU.

NOTES:

- If "DIRECT REC" is set to "OFF", the **RECORD** button functions as described in "Basic Recording" (pg. 20).
- During the Direct Rec, "—" appears on the display panel.
- When you perform T-V LINK functions, be sure to use the fully-wired 21-pin SCART cable.
- Retake function does not work during Direct Rec (pg. 22).

Colour System Set



You can play back PAL, NTSC and MESECAM tapes, or record PAL and SECAM* signals on this recorder. Follow the procedure below to select the appropriate colour system.

* SECAM signals will be recorded as MESECAM on this recorder; MESECAM is the designation for tapes with SECAM signals that have been recorded on a MESECAM-compatible PAL video cassette recorder.

TURN ON THE RECORDER

Press ψ/I .

ACCESS MAIN MENU SCREEN

Press MENU.

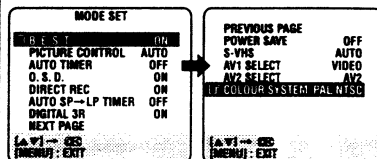
ACCESS MODE SET SCREEN

Press Δ/∇ to move the highlight bar (pointer) to "MODE SET", then press OK or $\triangleright$.



SELECT COLOUR SYSTEM MODE

Press Δ/∇ to move the highlight bar (pointer) to "COLOUR SYSTEM", then press OK or $\triangleright$ to select the appropriate colour system.



- a- PAL/NTSC: To record PAL signals, or play back a PAL or NTSC tape.
- b- MESECAM: To record SECAM signals, or play back a MESECAM tape.

RETURN TO NORMAL SCREEN

Press MENU.

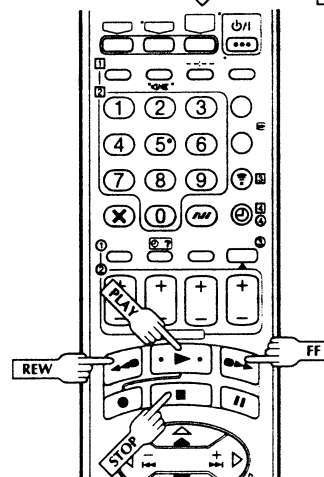
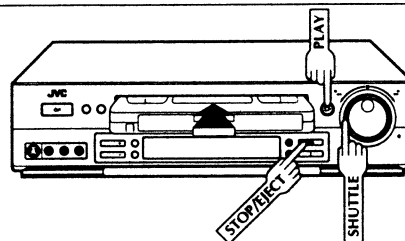
NOTES:

About NTSC Playback

- Some TVs shrink the picture vertically and place black bars at the top and bottom of the screen. This is not a malfunction on the part of either the video recorder or the TV.
- The picture may roll up and down. This can be corrected using the V-HOLD control found on some TVs. (This cannot be corrected if the TV does not have a V-HOLD control.)
- The counter and tape remaining time readings will be incorrect.
- During search, still, or frame-by-frame playback, the picture will be distorted, and there may be a loss of colour.
- Depending on the type of TV, the top and bottom portions of superimposed displays may be cut off during NTSC playback.

Basic Playback

Turn on the TV and select the VIDEO channel (or AV mode).



The easiest, most basic operation possible with your video recorder is tape playback. Already-recorded signals on a video tape are read by your video recorder and displayed on your TV just like a TV programme.

LOAD A CASSETTE

1 Make sure the window side is up, the rear label side is facing you and the arrow on the front of the cassette is pointed toward the recorder. Don't apply too much pressure when inserting.

- The recorder power comes on automatically and the counter is reset to 0:00:00.
- If the record safety tab has been removed, playback begins automatically.

FIND PROGRAMME START POINT

2 If the tape is advanced past the start point, press REW or turn the SHUTTLE ring to the left. To go forward, press FF or turn the SHUTTLE ring to the right.

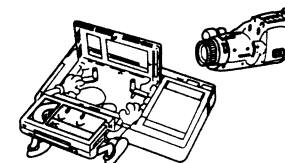
START PLAYBACK

3 Press PLAY. "BEST" appears blinking in the recorder's display panel during automatic tracking. (See pg. 24)

STOP PLAYBACK

4 Press STOP on the remote or STOP/EJECT on the recorder's front panel. Then press STOP/EJECT to remove the cassette.

Usable cassettes

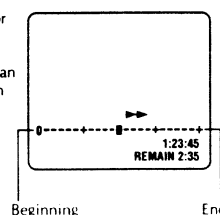


- Compact VHS camcorder recordings can be played on this video recorder. Simply place the recorded cassette into a VHS Cassette Adapter and it can be used just like any full-sized VHS cassette.
- This video recorder can record on regular VHS and Super VHS cassettes. While only VHS signals can be recorded on regular VHS cassettes, both VHS and Super VHS signals can be recorded and played back using Super VHS cassettes.

Tape Position Indicator

The tape position indicator appears on screen when, from the Stop mode, you press FF, REW or perform an Index Search. The position of "■" in relation to "0" (beginning) or "+" (end) shows you where you are on the tape.

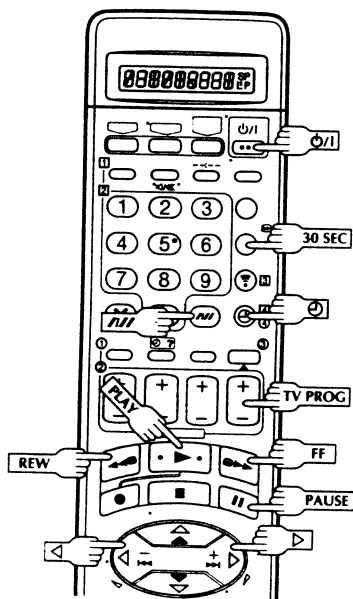
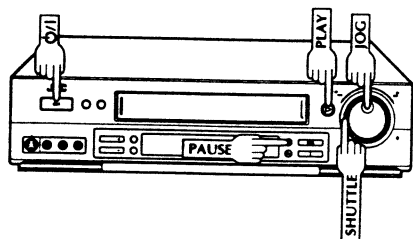
"O.S.D." (See pg. 11) must be set to "ON", or the indicator will not appear.



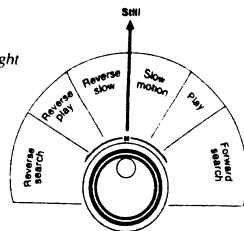
NOTE:

Depending on the type of tape used, there may be times when the indication is not correct.

Playback Features



NOTE:
Refer to the **SHUTTLE** ring illustration on the right as you read the following procedures.



Still Picture/Frame-By-Frame Playback

1 PAUSE DURING PLAYBACK
Press **PAUSE**. If there is vertical jitter, use the **TV PROG** buttons to correct the picture.

2 ACTIVATE FRAME-BY-FRAME PLAYBACK
Turn the **JOG** dial to the right for forward frame-by-frame playback, or to the left for reverse frame-by-frame playback.
OR
Press **PAUSE**.
OR
Press $\triangleleft$ or $\triangleright$.

To resume normal playback, press **PLAY**.

High-Speed (Turbo) Search

1 ACTIVATE HIGH-SPEED SEARCH
During playback or still, turn the **SHUTTLE** ring all the way to the right for forward high-speed search, or to the left for reverse high-speed search. Releasing **SHUTTLE** resumes still picture playback.

- For forward high-speed search, turn the **SHUTTLE** ring all the way to the right and release it within 1 second.
- For reverse high-speed search, turn the **SHUTTLE** ring all the way to the left and release it within 1 second.

OR
During playback or still, press **FF** for forward high-speed search, or **REW** for reverse high-speed search.

To resume normal playback, press **PLAY**.

NOTE:

For short searches, press and hold **FF** or **REW** for over 2 seconds during playback or still picture. When released, normal playback resumes.

ATTENTION

- Picture may not appear during high-speed search with an LP-recorded tape.
- In the high-speed search, still, slow motion or frame-by-frame playback mode, the picture will be distorted, and there will be a loss of colour.
- When normal playback resumes from search, still, slow motion or frame-by-frame playback, the picture may jitter vertically momentarily depending on the type of TV being used.

Slow Motion

1 ACTIVATE SLOW-MOTION PLAYBACK

During playback or still, turn the **SHUTTLE** ring to the right for forward slow motion, or to the left for reverse slow motion (refer to the illustration on page 16).

OR

During still picture, press and hold **PAUSE** for 2 seconds, then release. Press and release again to return to still picture.

OR

During still picture, press and hold $\triangleleft$ or $\triangleright$. Release to return to still picture.

To resume normal playback, press **PLAY**.

Variable-Speed Search

1 ACTIVATE VARIABLE-SPEED SEARCH

During playback or still, turn the **SHUTTLE** ring to the right for forward variable-speed search, or to the left for reverse variable-speed search (refer to the illustration on page 16).

OR

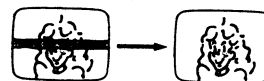
During playback, press $\triangleleft$ or $\triangleright$.

- The more times you press, the faster the playback picture moves.
- To decrease speed, press the button for the opposite direction.

To resume normal playback, press **PLAY**.

Manual Tracking

Your video recorder is equipped with automatic tracking control. During playback, you can override this and adjust the tracking manually by pressing the **TV PROG** buttons.



1 OVERRIDE AUTOMATIC TRACKING

Press **///** on the remote to engage manual tracking.

2 ADJUST TRACKING MANUALLY

Press **TV PROG** + or - to adjust tracking.

3 RETURN TO AUTOMATIC TRACKING

Press **///** on the remote to re-engage automatic tracking.

NOTE:

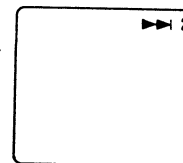
When a new tape is inserted, the recorder enters the automatic tracking mode automatically.

Index Search

Your recorder automatically marks index codes at the beginning of each recording. This function gives you quick access to any one of 9 index codes in either direction.

NOTE:

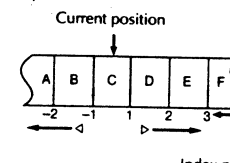
Before starting, make sure the recorder is in the **Stop** mode.



1 ACTIVATE INDEX SEARCH

Press $\triangleleft$ or $\triangleright$ ($\triangleleft\triangleleft$ or $\triangleright\triangleright$). " $\triangleleft\triangleleft$ 1" or " $\triangleright\triangleright$ 1" is displayed on screen and search begins in the corresponding direction.

- To access index codes 2 through 9, press $\triangleleft$ or $\triangleright$ repeatedly until the correct index number is displayed. Ex.: To locate the beginning of B from the current position, press $\triangleleft$ twice. To locate the beginning of D from the current position, press $\triangleright$ once.



- When the specified index code is located, playback begins automatically.

Skip Search

1 SKIP OVER UNWANTED SECTIONS

Press **30 SEC** 1 to 4 times during playback. Each press initiates a 30-second period of fast-motion playback. Normal playback resumes automatically.

NOTE:

To return to normal playback during a **Skip Search**, press **PLAY**.

Next Function Memory

The Next Function Memory "tells" the recorder what to do after rewinding. Before continuing, make sure the recorder is in the **Stop** mode.

- a- For Automatic Start Of Playback After Tape Rewind ... press **REW**, then press **PLAY** within 2 seconds.
- b- For Automatic Power Off After Tape Rewind ... press **REW**, then press ψ / within 2 seconds.
- c- For Automatic Timer Standby After Tape Rewind ... press **REW**, then press $\odot$ (**TIMER**) within 2 seconds.

Digital 3R

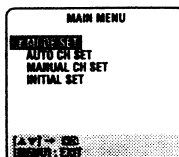
Digital 3R picture system applies edge correction to the luminance signal to enhance detail.

ACCESS MAIN MENU SCREEN

Press MENU.

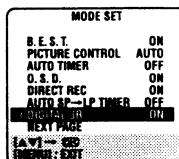
ACCESS MODE SET SCREEN

Move the highlight bar (pointer) to "MODE SET" by pressing Δ or ∇ , then press OK or $\triangleright$.



SELECT DIGITAL 3R SET MODE

Move the highlight bar (pointer) to "DIGITAL 3R" by pressing Δ or ∇ , then press OK or $\triangleright$ to set to "ON".

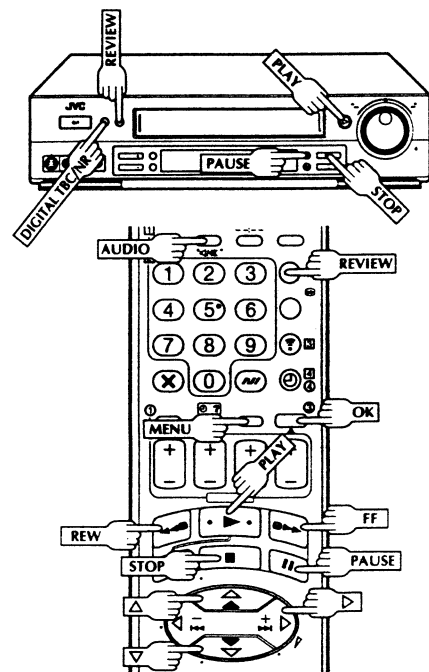


RETURN TO NORMAL SCREEN

Press MENU.

NOTES:

- Normally it is recommendable to keep "DIGITAL 3R" set to "ON".
- Depending on the type of tape being used, picture quality may be better with "DIGITAL 3R" set to "OFF".



Digital TBC/NR

Your video recorder is equipped with the Digital TBC (Time Base Corrector) that removes jitter from fluctuating video signals to deliver a stable picture even with old tapes and rental cassettes.

The on/off of Digital 3-DNR (Noise Reduction: which cuts noise and enables clear picture reproduction is also linked to this function.

* The default setting is "ON".

We recommend that you use the Digital TBC feature when...

... playing back a tape recorded on a camcorder.

... playing back a tape repeatedly used.

... using this video recorder as the player for editing.

1 ACTIVATE DIGITAL TBC/NR

Press DIGITAL TBC/NR so that the button lights up.

- To turn off DIGITAL TBC/NR, press DIGITAL TBC/NR again so that the light goes off.

NOTES:

- If you play back a tape recorded under poor TV reception condition, there may be cases where the picture becomes more stable with Digital TBC/NR set to off.
- When Digital TBC/NR is set to on, if you play back a tape where certain types of signals are recorded (using a PC or some character generators), the playback picture may be distorted. If this is the case, turn off Digital TBC/NR.
- When playing back a MESECAM tape, Digital TBC/NR does not function even though the TBC/NR button is lit.

Repeat Playback

Your video recorder can automatically play back the whole tape 50 times repeatedly.



1 START PLAYBACK

Press PLAY.

2 ACTIVATE REPEAT PLAYBACK

Press PLAY and hold for over 5 seconds, then release.

- The Play indicator (▶) on the display panel blinks slowly.
- The tape plays 50 times automatically, and then stops.

3 STOP PLAYBACK

Press STOP at any time to stop playback.

NOTE:

Pressing PLAY, REW, FF or PAUSE also stops Repeat Playback.

Instant ReView

Simply by pressing a single button, the recorder power comes on, rewinds, and begins playback of the last timer-recorded programme. If you have several programmes recorded, you can easily access any of them.

NOTE:

Before starting, make sure that the recorder is off and that the Timer mode is disengaged.

1 ACTIVATE INSTANT REVIEW

Press REVIEW. The recorder power comes on and the recorder searches for the index code indicating the start of the last timer-recorded programme. Once it's found, playback begins automatically.

- The front display panel tells you how many programmes have been timer-recorded. If you have, for example, 3 programmes, "REVIEW" and "3" appear and blink. To watch the first of the 3 programmes, press REVIEW three times. The recorder searches and begins playback automatically. You can access a programme as far as 9 index codes away from the current tape position.

NOTES:

- Instant ReView is not possible while the recorder is in the Timer mode.
- The number of recorded programmes will not be displayed on the front display panel after Auto Satellite Prog recording (▶ pg. 33).

Soundtrack Selection

Your video recorder is capable of recording three soundtracks (HI-FI L, HI-FI R and NORM) and will play back the one you select.

During Playback

Pressing AUDIO on the remote control changes the soundtrack being played back as follows:

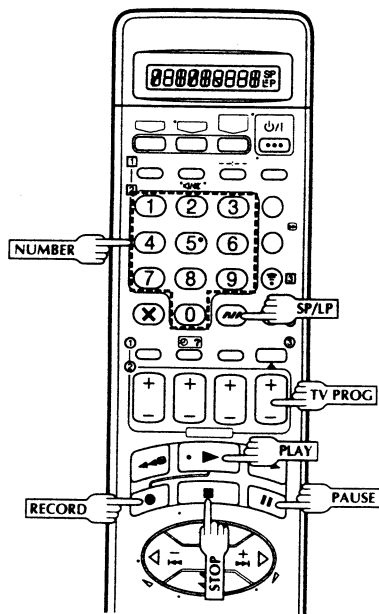
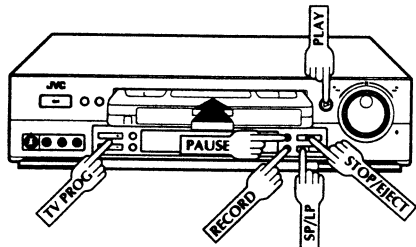
TRACK		USE
Recorder's Front Panel	On-Screen Display	
[L] + [R]	HI FI L R	For Hi-Fi stereo tapes
[L]	HI FI L	For main audio of Bilingual tapes
[R]	HI FI R	For sub audio of Bilingual tapes
NORM	NORM	For audio-dubbed tapes
[L] + [R] + NORM	HI FI NORM	For audio-dubbed tapes

NOTES:

- [L] + [R] should normally be selected. In this mode, Hi-Fi stereo tapes are played back in stereo, and the normal audio track is played back automatically for tapes with only normal audio.
- For instructions on recording stereo and bilingual programmes, refer to page 23.
- "O.S.D." must be set to "ON" or the on-screen displays will not appear (▶ pg. 11).

Basic Recording

Turn on the TV and select the VIDEO channel (or AV mode).



Recording Resume Function

If there is a power outage during recording (or Instant Timer Recording or timer recording), the recording will resume automatically when power is restored to the recorder unless the recorder's memory backup has expired.

TV signals being received by the recorder's built-in tuner can be recorded onto a video tape. You can "capture" a TV programme using your video recorder.

LOAD A CASSETTE

Insert a cassette with the record safety tab intact.

- The counter is reset to 0:00:00 and the recorder power comes on automatically.

CHOOSE A PROGRAMME

Press TV PROG +/- or the NUMBER keys to select the channel you wish to record.

SET TAPE SPEED

Press SP/LP (**II**). Check the SP/LP indicator on the recorder display panel to confirm the selected tape speed.

START RECORDING

Press and hold RECORD and press PLAY on the remote control, or press RECORD on the recorder.

B.E.S.T. takes place at the beginning of both the first SP and the first LP recording after inserting the cassette (**ⓘ** pg. 24).

If "DIRECT REC" is set to "ON", the programme that appears on the TV screen will be recorded (**ⓘ** pg. 13).

PAUSE/RESUME RECORDING

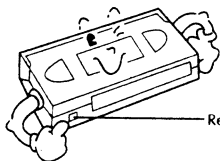
Press PAUSE. Press PLAY to resume recording.

STOP RECORDING

Press STOP on the remote control or STOP/EJECT on the recorder. Then press STOP/EJECT to remove the cassette.

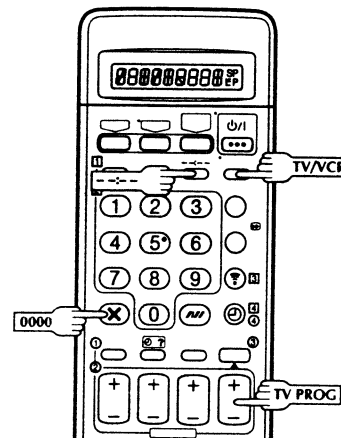
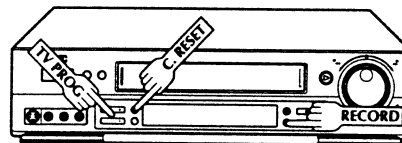
Accidental erasure prevention

- To prevent accidental recording on a recorded cassette, remove its safety tab. To record on it later, cover the hole with adhesive tape.



Record safety tab

Recording Features



Instant Timer Recording (ITR)

This easy method lets you record for from 30 minutes to 6 hours (selectable in 30-min. increments), and shuts the recorder off after recording is finished.

START RECORDING

Press RECORD on the recorder.

ENGAGE ITR MODE

Press RECORD again. "ITR" blinks and 0:30 appears on the front display panel.

SET RECORDING DURATION

If you want to record for more than 30 minutes, press RECORD to extend the time. Each press extends recording time by 30 minutes.

NOTE:

You can only perform ITR using the RECORD button on the recorder's front panel.

Record One Programme While Watching Another

If your recorder is connected to the TV via AV connection, ... press TV/VCR. The recorder's VCR indicator and the TV broadcast being recorded disappear.

SELECT CHANNEL TO WATCH

Once recording is in progress, all you need to do is to set the channel controls on the TV for the station you wish to view.

- The programme selected with the TV's channel controls appears on the TV screen while the one selected with the recorder's TV PROG buttons is recorded on the tape.
- If a decoder is connected to the recorder (**ⓘ** pg. 46), you can select a scrambled channel as well with the TV channel controls.

Elapsed Recording Time Indication

You can check the exact time of a recording.

SET COUNTER DISPLAY

Press -- -- until a counter reading appears on the display panel.

RESET COUNTER

Press C. RESET (or 0000) before starting recording or playback.

- The counter is reset to "0:00:00" and shows the exact elapsed time as the tape runs.

Tape Remaining Time

DISPLAY REMAINING TIME

Press -- -- until the time remaining on the tape appears.

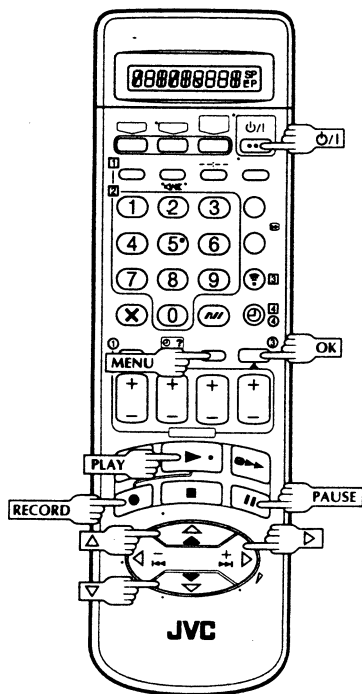
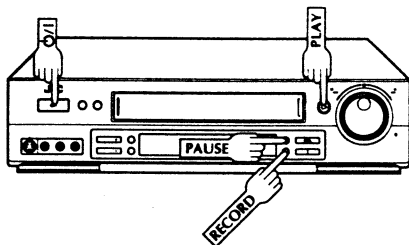
- The display panel shows the tape remaining time with "TR" displayed.
- By pressing the -- -- button, you can change the display to show the counter reading, channel position*, clock time or tape remaining time.
- *channel position is not displayed during playback.

NOTE:

Depending on the type of tape used, there may be times when the tape remaining time reading may not appear right away, or is not correct. "-- --" may sometimes appear, or the display may blink on occasion.

B.E.S.T. Picture System

Turn on the TV and select the VIDEO channel (or AV mode).



The B.E.S.T. (Biconditional Equalised Signal Tracking) system checks the condition of the tape in use during recording and playback, and compensates to provide the highest-possible recording and playback pictures. The default setting for both recording and playback is "ON".

Preparation

1 TURN ON THE RECORDER

Press ϕ/I .

2 ACCESS MAIN MENU SCREEN

Press MENU.

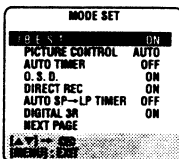
3 ACCESS MODE SET SCREEN

Press Δ/∇ to move the highlight bar (pointer) to "MODE SET", then press OK or $\triangleright$.



4 SELECT B.E.S.T. MODE

Press Δ/∇ to move the highlight bar (pointer) to "B.E.S.T.", then press OK or $\triangleright$ to set to "ON" or "OFF".



5 RETURN TO NORMAL SCREEN

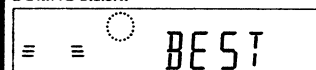
Press MENU.

Recording

START RECORDING

1 Press and hold RECORD and press PLAY on the remote, or press RECORD on the recorder.

DURING B.E.S.T.



B.E.S.T. COMPLETE

The recorder spends approximately 7 seconds assessing the condition of the tape, then begins recording.

NOTES:

- The B.E.S.T. system works for both SP and LP modes only after a tape has been inserted and the Record mode is first initiated. It does not work during recording.
- The B.E.S.T. system does not work while Auto Satellite Prog recording is in progress (pg. 33).
- In the case of timer recording, the B.E.S.T. system works before recording is initiated.
- Once the cassette is ejected, the B.E.S.T. data is cancelled. The next time the cassette is used for recording, B.E.S.T. is re-performed.
- Pressing the recorder's RECORD button while "BEST" is displayed does not start Instant Timer Recording (pg. 21).

ATTENTION

Since the B.E.S.T. system works before recording actually starts, there is a delay of approximately 7 seconds after RECORD and PLAY on the remote are pressed, or RECORD on the recorder is pressed. To make sure you record the desired scene or programme in its entirety, first perform the following steps:

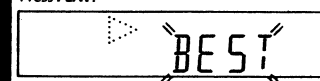
- Press and hold PAUSE and press RECORD to engage the RECORD PAUSE mode.
 - The recorder then automatically checks the condition of the tape and, after approximately 7 seconds, re-enters RECORD PAUSE.
- Press PLAY to start recording.
 - If you want to bypass the B.E.S.T. system and begin recording immediately, set "B.E.S.T." to "OFF" in step 4 on page 24.

Playback

The recorder assesses the quality of the tape once you initiate playback.

START PLAYBACK

Press PLAY.



- The recorder adjusts the playback picture quality based on the quality of the tape in use.
- B.E.S.T. is active during Auto Tracking. "BEST" appears blinking on the recorder's display panel.

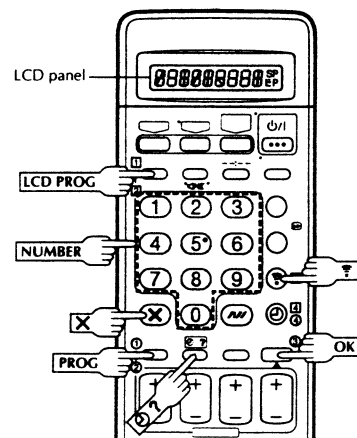
NOTES:

- When watching a tape recorded with "B.E.S.T." set to "ON", it is recommended that you leave B.E.S.T. on during playback as well.
- When watching a rental tape or one recorded on another video recorder, or when using this recorder as the player for editing, set B.E.S.T. to your preference by performing steps 1 through 5 on page 24.
- "BEST" only appears at the beginning of automatic tracking. Even though it doesn't appear after that, the B.E.S.T. function is operative.

SHOWVIEW Timer Programming

Before performing ShowView Timer Programming:

- Make sure that the recorder's built-in clock is set properly.
- Insert a cassette with the safety tab in place. The recorder will come on automatically.
- Turn on the TV and select the VIDEO channel (or AV mode).

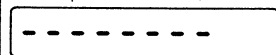


You can use the remote control with LCD panel to enter the ShowView number.

ACCESS SHOWVIEW DISPLAY

Press LCD PROG.

The LCD panel looks like this:

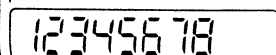


ENTER SHOWVIEW NUMBER

Press the NUMBER keys to enter the ShowView number of a programme you wish to record, then press P .

- If you make a mistake, press X and input the correct number.

The ShowView number you enter appears on the LCD panel:

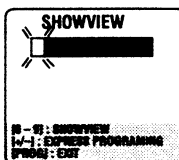


Then go to step 3 in the right column.

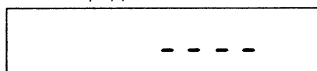
With ShowView, timer programming is greatly simplified because each TV programme has a corresponding code number which your recorder is able to recognize.

ACCESS SHOWVIEW SCREEN

Press PROG.



The front display panel looks like this:



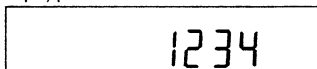
ENTER SHOWVIEW NUMBER

Press the NUMBER keys to enter the ShowView number of a programme you wish to record, then press OK.

- If you make a mistake, press X and input the correct number.



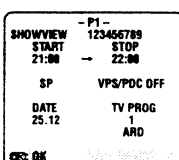
The ShowView number you enter appears on the front display panel:



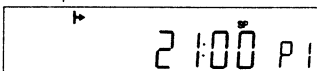
The display panel can show only a 4-digit number.

ACCESS SHOWVIEW PROGRAM SCREEN

The ShowView Program screen appears (if you're just starting out, "P1" appears).



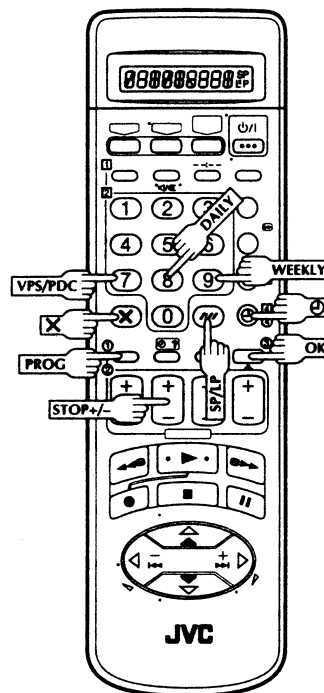
The display panel shows the programme start time. Pressing P changes the display to the programme stop time, then the date and channel position.



IMPORTANT

Make sure the channel position number you wish to record is displayed: if not, see "ShowView Setup" on page 58 and set the Guide Program number for that ShowView number correctly.

- If the number you entered is invalid, "ERROR" appears on the screen and "Err" appears on the display panel. Press X and input a valid ShowView number.
- If the "GUIDE PROG SET" screen appears, see "ATTENTION - Regarding Guide Program Number Set" on page 27.



Satellite Tuner Users

To timer-record a satellite broadcast using ShowView:

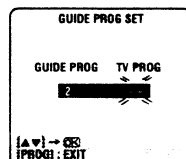
- 1 Set "AV2 SELECT" to "AV2" (pg. 40).
- 2 Perform steps 1 - 7.
- 3 Set the satellite tuner to the appropriate channel before the selected programme begins.
- 4 Leave the satellite tuner's power on.

ATTENTION

Regarding Guide Program Number Set

"GUIDE PROG SET" appears after performing step 3 if the Guide Program number for the ShowView number you entered has not been set.

- Press the NUMBER keys or Δ to input the channel position number on which your recorder receives that station, then press OK or $\triangleright$ to set the Guide Program number. The ShowView program screen appears.



(Ex.) To timer-record a ZDF programme with ShowView.
• If your recorder receives ZDF on the channel position 2, press OK or $\triangleright$ after entering "2".

SET TAPE SPEED

Press SP/LP (1111) to set the tape speed.

SET VPS/PDC MODE

Press VPS/PDC to select "ON" or "OFF".

If "VPS/PDC ON" is displayed on the screen or "VPS/PDC" is lit on the display panel, VPS/PDC is set to ON. If "VPS/PDC OFF" is displayed on the screen or "VPS/PDC" is not lit on the display panel, VPS/PDC is set to OFF. P "VPS/PDC Recording" on page 29.

RETURN TO NORMAL SCREEN

Press PROG or OK. "PROGRAM COMPLETED" appears on the screen for about 5 seconds, then normal screen appears.

- Repeat steps 1 - 6 for each additional programme.

ENGAGE RECORDER'S TIMER MODE

Press P (TIMER). The recorder turns off automatically and P appears on the display panel.

- To disengage the timer, press P (TIMER) again.

NOTES:

- To Change The Stop Time ...
... press STOP +/- in step 3. You can compensate for anticipated programme schedule delays this way.
- To Timer-Record Weekly Or Daily Serials ...
... in step 3, press WEEKLY (NUMBER key "9") for weekly serials or DAILY (NUMBER key "8") for daily serials (Monday - Friday). Either "WEEKLY" or "DAILY" appears on the screen. Pressing the button again makes the corresponding indication disappear.
- You can programme this recorder to timer-record as many as 8 programmes. If you try to programme the recorder to record a ninth, "PROGRAM FULL" appears on screen and "FULL" appears on the front display panel. To record the extra programme, you must first cancel any unnecessary programmes (pg. 30).
- It is not possible to timer-record a TV programme with a ShowView number which starts with "0".

Timer Warning

If you have programmed your recorder to timer-record a programme or a series of programmes, a warning appears on screen to tell you that the recording is to start in 5 minutes.

- WARNING -
TIMER RECORDING
TO START SOON
[X]

NOTES:

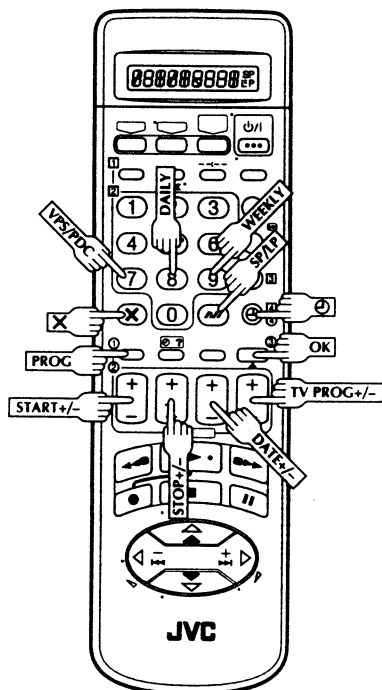
- The warning only appears if you're not in the Timer mode at that time.
- If this recorder is being used as the player for tape dubbing, the warning screen is recorded on the tape in the other video recorder.

The warning blinks for the entire 5 minutes leading up to the start of timer recording. To clear the display, press X.

Express Timer Programming

Before performing Express Timer Programming:

- Make sure that the recorder's built-in clock is set properly.
- Insert a cassette with the safety tab in place. The recorder will come on automatically.
- Turn on the TV and select the VIDEO channel (or AV mode).



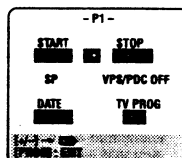
If you don't know the ShowView number for the programme you wish to record, use the following procedure to set your recorder to timer-record the programme.

1 ACCESS SHOWVIEW SCREEN

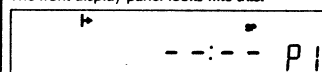
Press **PROG**.

2 ACCESS PROGRAMME SCREEN

Press **START +/-**. (If you're just starting out, "P1" appears.)



The front display panel looks like this:

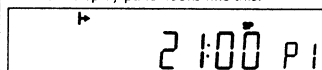


3 ENTER PROGRAMME START TIME

Press **START +/-** to enter the time you want recording to start.

- Press and hold **START +/-** to move in 30-minute increments, or press and release repeatedly to move 1 minute at a time.

The front display panel looks like this:



4 ENTER PROGRAMME STOP TIME

Press **STOP +/-** to enter the time you want recording to stop.

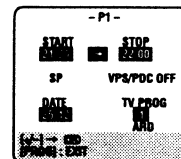
- Press and hold **STOP +/-** to move in 30-minute increments, or press and release repeatedly to move 1 minute at a time.

5 ENTER PROGRAMME DATE

Press **DATE +/-**. (The current date appears on screen. The date you enter appears in its place.)

ENTER CHANNEL POSITION

Press **TV PROG +/-**.



7 SET TAPE SPEED

Press **SP/LP (//)** to set the tape speed.

8 SET VPS/PDC MODE

Press **VPS/PDC** to select "ON" or "OFF".

If "VPS/PDC ON" is displayed on the screen or "VPS/PDC" is lit on the display panel, VPS/PDC is set to ON. If "VPS/PDC OFF" is displayed on the screen or "VPS/PDC" is not lit on the display panel, VPS/PDC is set to OFF. **TV PROG** Recording in the right column.

9 RETURN TO NORMAL SCREEN

After confirming all information is correct, press **PROG** or **OK**. "PROGRAM COMPLETED" appears on the screen for about 5 seconds, then normal screen appears.

- Repeat steps 1 - 9 for each additional programme.

ENGAGE RECORDER'S TIMER MODE

Press **⏸ (TIMER)**. The recorder turns off automatically and **⏸** appears on the display panel.

- To disengage the timer, press **⏸ (TIMER)** again.

To Timer-Record Weekly Or Daily Serials . . .
... anytime during steps 2 through 9, press **WEEKLY (NUMBER key "9")** for weekly serials or **DAILY (NUMBER key "8")** for daily serials (Monday - Friday). Either "WEEKLY" or "DAILY" appears on the screen. Pressing the button again makes the corresponding indication disappear.

NOTE:

You can programme this recorder to timer-record as many as 8 programmes. If you try to programme the recorder to record a ninth, "PROGRAM FULL" appears on screen and "FULL" appears on the front display panel. To record the extra programme, you must first cancel any unnecessary programmes (pg. 30).

Satellite Tuner Users

To timer-record a satellite broadcast using Express Timer Programming:

- 1 Set "AV2 SELECT" to "AV2" (pg. 40).
- 2 Perform steps 1 - 10. Enter "L-2" for the channel position in step 6.
- 3 Set the satellite tuner to the appropriate channel before the selected programme begins.
- 4 Leave the satellite tuner's power on.

VPS/PDC Recording

Now available from some TV stations, PDC (Programme Delivery Control) and VPS (Video Programme System) are service designed to assure safe, accurate timer recording. With this system, special code signals are transmitted together with the audio/video signals. These code signals control your video recorder and have precedence over the advertised times you may have preset into the timer. This means that your recorder will start and stop recording when the preset TV programmes actually start and end — even if the broadcast time of a preset TV programme is changed.

NOTES:

- When you use Express Timer Programming, set the start time (VPS or PDC time) exactly as advertised in the TV listing. A different time than advertised will result in no recording.
- VPS/PDC recording is also possible when a satellite tuner or a cable system is connected to AV2 IN/DECODER on your recorder.
- VPS/PDC recording is also possible via the AV1 IN/OUT connector.

How to check if the station being received transmits a VPS/PDC signal

- 1 Press **-- --** until the channel position appears on the display panel.
- 2 Hold down **START+** for about 5 seconds.
 - "VPS/PDC" appears blinking on the display panel.
 - If a VPS/PDC signal is detected from the station, "VPS/PDC" will stop blinking.
 - If no VPS/PDC signal is detected from the station, "VPS/PDC" will blink at a slower rate.
- 3 Press **-- --** or **START+** again to return to normal display.

Timer Warning

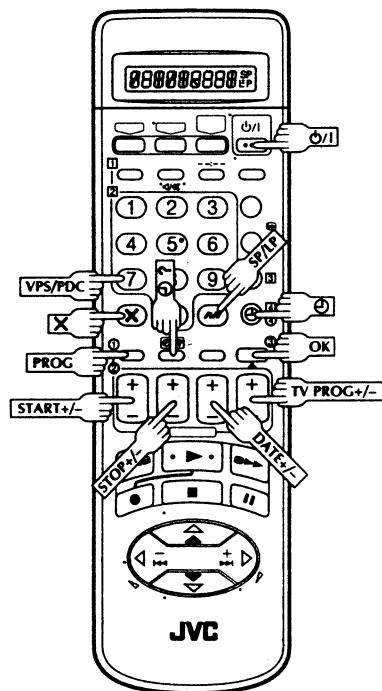
If you have programmed your recorder to timer-record a programme or a series of programmes, a warning appears on screen to tell you that the recording is to start in 5 minutes.

NOTES:

- The warning only appears if you're not in the Timer mode at that time.
- If this recorder is being used as the player for tape dubbing, the warning screen is recorded on the tape in the other video recorder.

The warning blinks for the entire 5 minutes leading up to the start of timer recording. To clear the display, press **X**.

— WARNING —
TIMER RECORDING
TO START SOON
[X]



Check, Cancel And Replace Programmes

1 DISENGAGE TIMER MODE

Press $\odot$ (TIMER), then press ψ/I .

2 ACCESS PROGRAM CHECK SCREEN/DISPLAY

Press $\odot$?.

PR	START	STOP	CH	DATE
1	8:00	10:00	3	24.12
2	10:00	10:05	2	25.12
3	11:30	13:00	1	25.12
4				
5				
6				
7				
8				
9				
0				

P 1 P 8

3 ACCESS PROGRAM SCREEN/DISPLAY

Press $\odot$? again to check more information. Each time you press $\odot$?, the next programme's information appears.

- P1 -	
START 8:00	STOP 10:00
SP	VPS/PDC OFF
DATE 24.12	TV PROG WDR

8:00 P 1

- The display panel shows the programme start time. Pressing OK changes the display to the programme stop time, then the date and the channel position.

To cancel or replace a programme...

4 CANCEL OR REPLACE A PROGRAMME

Press X to cancel a programme. To replace a programme, press the appropriate button: START+/-, STOP+/-, DATE+/-, TV PROG+/-, VPS/PDC, SP/LP (///).

5 RETURN TO NORMAL SCREEN/DISPLAY

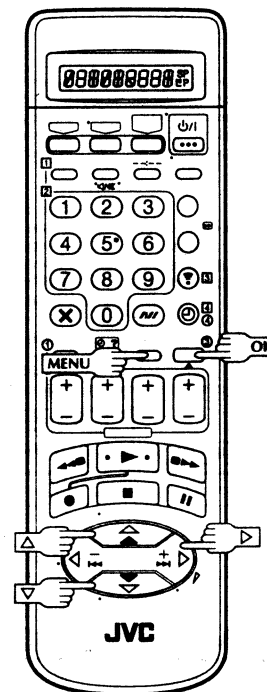
Press $\odot$? as many times as necessary. If there are still some programmes remaining, go on to step 6.

6 RETURN TO TIMER MODE

Press $\odot$ (TIMER).

NOTE:

You can also check the programmes on the display panel even if the recorder's power is off (unless the recorder is in the Power Save mode $\Rightarrow$ pg. 12) or the recorder is in the Timer mode; however, it is not possible to cancel or replace the programmes.



Auto SP→LP Timer

If, when timer-recording in SP mode, there is not enough tape to record the entire programme, the recorder automatically switches to LP mode to allow complete recording.

For Example ...

Recording a programme of 210 minutes in length onto a 180-minute tape

Approximately 150 minutes	Approximately 60 minutes
SP mode	LP mode
Total 210 minutes	

Make sure you set "AUTO SP→LP TIMER" to "ON" at the Mode Set screen before the timer-recording starts.

1 ACCESS MAIN MENU SCREEN

Press MENU.

2 ACCESS MODE SET SCREEN

Press Δ to move the highlight bar (pointer) to "MODE SET", then press OK or $\triangleright$.

3 SELECT MODE

Press Δ to move the highlight bar (pointer) to "AUTO SP→LP TIMER", then press OK or $\triangleright$ to select "ON".

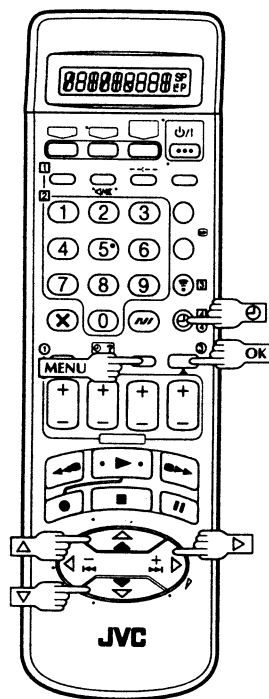
MODE SET	
B.E.S.T.	ON
PICTURE CONTROL	ON
AUTO TIMER	OFF
O.S.D.	ON
DIRECT REC	ON
WIDE SCREEN	ON
DIGITAL IN	ON
NEXT PAGE	ON
LAZY SCAN	ON
SCREEN TEST	ON

4 RETURN TO NORMAL SCREEN

Press MENU.

NOTES:

- If you have programmed the recorder to timer-record 2 or more programmes, the second programme and those thereafter may not fit on the tape if you set "AUTO SP→LP TIMER" to "ON". In this case, make sure the mode is not engaged, then set the tape speed manually during timer programming.
- In order to ensure that the recording fits on the tape, this feature may leave a slight non-recorded section at the end of the tape.
- There may be some noise and sound disturbance at the point on the tape where the recorder switches from SP to LP mode.
- The Auto SP→LP Timer feature is not available during ITR (Instant Timer Recording), and the feature will not work properly with any tapes longer than E-180 or with some tapes of shorter lengths.
- If you perform timer recording with both VPS/PDC and the Auto SP→LP Timer activated, and the programme goes beyond its originally scheduled length, there may be times when the programme cannot be recorded in its entirety.



Auto Timer

When the Auto Timer is set to ON the timer is automatically engaged when the recorder power is turned off and automatically disengaged when the recorder is powered back on.

1 ACCESS MAIN MENU SCREEN

Press MENU.

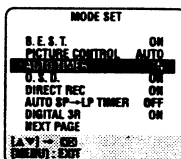
2 ACCESS MODE SET SCREEN

Press Δ / ∇ to move the highlight bar (pointer) to "MODE SET", then press OK or $\triangleright$.



3 SELECT MODE

Press Δ / ∇ to move the highlight bar (pointer) to "AUTO TIMER", then press OK or $\triangleright$ to select either "ON" or "OFF".



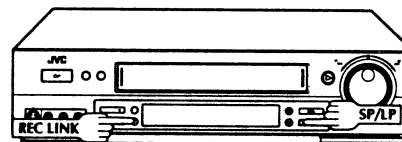
4 RETURN TO NORMAL SCREEN

Press MENU.

NOTE:

For safety, when Auto timer is set to "OFF", all other recorder functions are disabled while the Timer mode is engaged. To disengage the timer, press $\odot$ (TIMER).

Automatic Satellite Programme Recording



ATTENTION

- Be sure not to turn on the satellite tuner before the programme is executed; otherwise, the recorder will start recording when the satellite tuner's power is turned on.
- If you have connected another appliance other than a satellite tuner to the AV2 IN/DECODER connector, be sure not to engage the Auto Satellite Prog Rec mode; otherwise, the recorder will start recording when the connected appliance's power is turned on.
- Auto Satellite Prog recording and timer-recording cannot be done at the same time.

This facility allows you record automatically a satellite programme which is timer-programmed on your external satellite tuner. Connect a satellite tuner to the recorder's AV2 IN/DECODER connector (see pg. 43, 44) and programme the timer on the satellite tuner; the recorder starts recording when the signals input from the satellite tuner to the AV2 IN/DECODER connector, and when there is no input signals the recorder stops recording and the power shuts off.

Before performing the following steps:

- Make sure the satellite tuner is connected to the recorder's AV2 IN/DECODER connector. (see pg. 43, 44)
- Programme the timer on the satellite tuner.
- Insert a cassette with the safety tab in place.

1 SELECT AV2 SELECT MODE

Set "AV2 SELECT" to "AV2" (see pg. 40).

- When you select "SAT", refer to "IMPORTANT" on page 43.

2 SET TAPE SPEED

Press SP/LP (II/III) to set the tape speed.

3 ENGAGE AUTO SATELLITE PROG REC MODE

Press and hold REC LINK on the recorder for about 2 seconds. The button lights up and the recorder turns off automatically.

- To disengage the Auto Satellite Prog Rec mode, press REC LINK. The button's light goes off.
- If the recorder's power is off, it is not possible to engage the Auto Satellite Prog Rec mode.

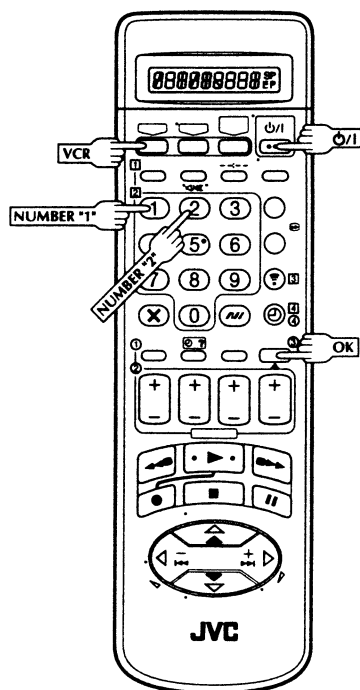
NOTES:

- Auto Satellite Prog recording is possible with the AV2 IN/DECODER connector only. (see pg. 43, 44)
- For timer programming of the satellite tuner, refer to the instruction manual of the satellite tuner.
- Auto Satellite Prog recording is not possible if your satellite tuner does not have a timer.
- The button's light blinks while Auto Satellite Prog recording is in progress.
- Pressing the recorder's $\odot$ /I button while Auto Satellite Prog recording is in progress turns off the recorder's power and disengage the Auto Satellite Prog Rec mode.
- If there are more than one satellite programme you wish to record with Auto Satellite Prog Recording, it is not possible to set the different tape speed per each; the tape speed selected in step 2 will be applicable to all the programmes for Auto Satellite Prog recording.
- The B.E.S.T. system (see pg. 24) does not work while Auto Satellite Prog recording is in progress.
- Just Clock (see pg. 56) does not work when the Auto Satellite Prog Rec mode is engaged.
- Depending on the type of satellite tuner, the recorder may not record a slight portion of the beginning of the programme or may record slightly longer than the actual length of the programme.
- If you engage the Auto Satellite Prog Recording mode when the satellite tuner's power is on, the recorder will not start Auto Satellite Prog recording even though the button's light blinks. When the satellite tuner shuts off once and is turned back on again, the recorder starts recording.
- When the Auto Satellite Prog Rec mode is engaged or the recorder's power is turned off after Auto Satellite Prog recording is finished, the recorder will not enter the Timer mode even though "AUTO TIMER" is set to "ON".
- After Auto Satellite Programme recording, the number of recorded programmes will not be displayed on the front display panel for the Instant ReView function (see pg. 19).
- You can also record a programme from your cable system in the same way if the system has a timer.
- When you press and hold the recorder's REC LINK button to engage the Auto Satellite Prog Rec mode, if the button does not light but instead blinks quickly even though your satellite tuner's power is off, Auto Satellite Prog Recording will not work properly with that satellite tuner*.

If this is the case, perform "Express Timer Programming" (see pg. 28) to timer-record a satellite programme.

* Some satellite tuners output signals even if the power is off. Auto Satellite Prog Recording is not possible with those satellite tuners.

Remote Control Functions



Remote A/B Code Switching

The remote control is capable of controlling two JVC video recorders independently; one set to respond to the remote control's A code control signals and another set to respond to B code control signals. The remote control is preset to send A code signals because your video recorder is initially set to respond to A code signals. You can easily modify your video recorder to respond to B code signals.

1 REMOVE POWER SUPPLY

Unplug the mains power cord from the mains outlet.

2 SET REMOTE CONTROL CODE

Press and hold VCR on the remote control for over 2 seconds, press the NUMBER key "2" and then press OK.

3 RE-SUPPLY POWER

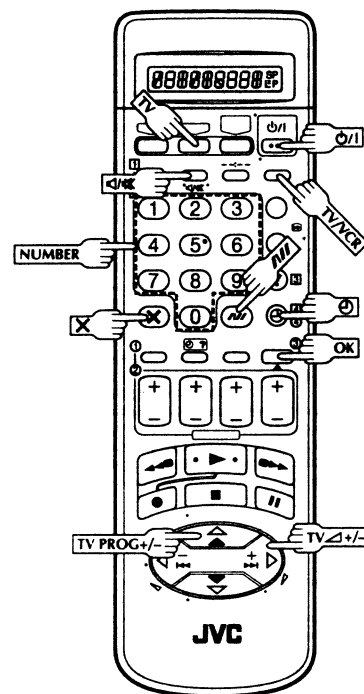
Plug the mains power cord back into the mains outlet.

4 TURN THE RECORDER ON

Press ϕ/I on the remote control. The recorder will now only respond to B code signals.

NOTE:

To set the recorder back to respond to A code signals, repeat the same procedure as shown above except pressing NUMBER key "1" instead of "2" in step 2.



TV Multi-brand Remote Control

Your remote control can operate the basic functions of your TV set. In addition to JVC TVs, other manufacturer's TVs can also be controlled.

Before you start . . .

- Turn off the TV using its remote control.

1 SET TV BRAND CODE

Refer to the chart below. Press and hold TV on the recorder's remote control for over 2 seconds, enter your TV's brand code using the NUMBER keys, then press OK.

Check if the TV's power goes on as it should. If it does, try other operations (→ step 2).

- Once you have set the remote control to operate the TV, you don't have to repeat this step until you replace your remote control's batteries.
- JVC or SAMSUNG has more than one code. If the TV does not function with one code, try entering another.

2 OPERATE TV

First, press TV to set the remote control to TV mode, then press the corresponding button: ϕ/I , TV PROG +/-, TV/VCR, TV Δ +/- (Volume), $\square/\square$ (Muting), NUMBER keys.

- For some brands of TV, you must press OK after having pressed the NUMBER keys.

IMPORTANT

Although the provided remote control unit is compatible with JVC televisions, as well as many other models, it may not work with your TV, or in some instances, may have limited function capability.

Control Your TV Using Additional Buttons

Use the NUMBER keys, and the $\square/\square$ button, X button or ϕ button to select the TV's channel.

- With televisions under Code 01, 02, 07, 10, 11, 14, 20, 23, 24, 25, 27, 33 or 35, the $\square/\square$ button corresponds to the 1-digit/2-digit entry switching button (often labelled -/-) of your TV's remote control.
- With televisions under Code 01, 28, 29 or 34, the X button corresponds to the 10 + button, and the ϕ button corresponds to the 20 + button of your TV's remote control.

NOTE:

The way these buttons are used is determined by your TV. Use these buttons as instructed for your TV's remote control.

TV BRAND NAME	CODE
JVC	01, 23, 24, 25
BLAUPUNKT	19
BRANDT	26
FERGUSON	27
FINLUX	30
FUNAI	32
LG/GOLDSTAR	18
GRAETZ	28
GRUNDIG	19
HITACHI	10
ITT	28
LUXOR	28
MITSUBISHI	03
MIVAR	29
NEC	20
NOKIA	31
NORDMENDE	26
PANASONIC	11
PHILIPS	02
SABA	26
SALORA	28
SAMSUNG	02, 12, 33, 34, 35
SELECO	28
SHARP	06
SONY	07
TELEAVIA	26
TELEFUNKEN	26
THOMSON	26
TOSHIBA	14

Satellite Tuner Multi-Brand Remote Control

Your remote control can operate the basic functions of your satellite tuner set. In addition to JVC satellite tuners, other manufacturer's satellite tuners can also be controlled.

Before you start . . .

- Turn off the satellite tuner using its remote control.

1 SET SATELLITE TUNER BRAND CODE

Refer to the chart below. Press and hold CABLE/SAT on the recorder's remote control for over 2 seconds, enter your satellite tuner's brand code using the NUMBER keys, then press OK.

Check if the satellite tuner's power goes on as it should. If it does, try other operations (⇨ step 2).

- Once you have set the remote control to operate the satellite tuner, you don't have to repeat this step until you replace your remote control's batteries.
- Some satellite tuner brands have more than one code. If the satellite tuner does not function with one code, try entering another.

2 OPERATE SATELLITE TUNER

First, press CABLE/SAT to set the remote control to satellite tuner mode, then press the corresponding button: ψ/I , TV PROG +/-, NUMBER keys.

- For VIDEOWAY or some brands of satellite tuner, you must press /// after having pressed the NUMBER keys.
- The NUMBER buttons may not function with some satellite tuners.

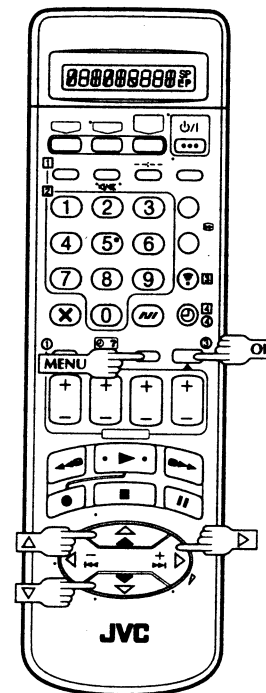
IMPORTANT

Although the provided remote control unit is compatible with JVC satellite tuners, as well as many other models, it may not work with your satellite tuner, or in some instances, may have limited function capability.

SATELLITE TUNER BRAND	CODE
JVC	72, 73
AMSTRAD	60, 61, 62, 63
BT	72
CANAL +	81
FINLUX	68
GRUNDIG	64, 65
HIRSCHMANN	64
ITT	68
JERROLD	75
KATHREIN	70, 71
LUXOR	68
MASPRO	70
NOKIA	68
PACE	65, 67
PANASONIC	74
PHILIPS	66
RFT	69
SALORA	68
SIEMENS	64
SKYMASTER	69
VIDEOWAY	76
WISI	64

Preparation For Editing

Turn on the TV and select the VIDEO channel (or AV mode).



Advantages Of S-VHS Video Recorders

You can edit from VHS to S-VHS, S-VHS to VHS, or, from S-VHS to S-VHS.

- From VHS to S-VHS: Record VHS playback signals in the S-VHS mode. Although the picture quality is inherently limited by that of the original, the edited tape has better picture quality than those made by VHS-to-VHS editing.
- From S-VHS to VHS: Because the picture quality of the source material is very high, the edited tape has better picture quality than those made by VHS-to-VHS editing.
- From S-VHS to S-VHS: All signals will be transferred with minimum degradation.

Picture Control

This feature helps you to adjust the playback picture quality according to your preference. *The default setting is "AUTO."

1 ACCESS MAIN MENU SCREEN

Press MENU.

2 ACCESS MODE SET SCREEN

Move the highlighted bar (pointer) to "MODE SET" by pressing Δ/∇ , then press OK or $\triangleright$.

3 SELECT PICTURE CONTROL SET MODE

Move the highlighted bar (pointer) to "PICTURE CONTROL" by pressing Δ/∇ , then press OK or $\triangleright$ to select the desired mode.

AUTO: Provides

optimised picture benefits of B.E.S.T. Picture System. Normally select AUTO.

EDIT: Minimizes picture degradation during editing (recording and playback).

SOFT: Reduces image coarseness when viewing overplayed tapes containing a lot of noise.

SHARP: Clearer, sharper-edged picture when viewing images with lots of flat, same-coloured surfaces such as cartoons.

NOTES:

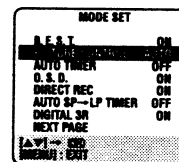
- When you select EDIT, SOFT or SHARP, the selected mode will not change until you select again.
- When you select EDIT to dub tapes, be sure to select AUTO after you finish dubbing the tapes.

4 RETURN TO NORMAL SCREEN

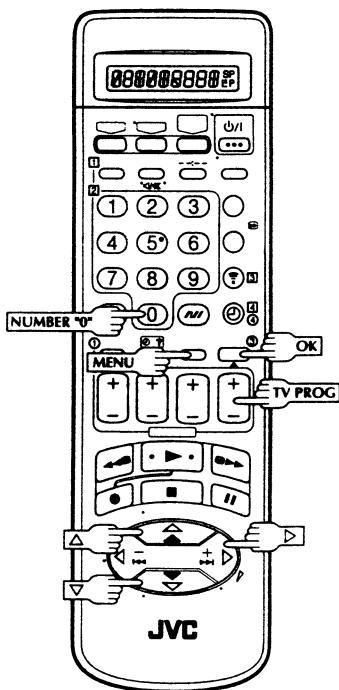
Press MENU.

NOTES:

- When B.E.S.T. is OFF, "PICTURE CONTROL" switches automatically from AUTO to NORM.
- Select EDIT when you are dubbing tapes. Refer to page 38.



Edit To Or From Another Video Recorder



You can use your video recorder as the source player or as the recording deck.

1 MAKE CONNECTIONS

Connect the player's 21-pin SCART connector to the recorder's 21-pin SCART connector as illustrated on page 39.

A When Using Your Video Recorder As The Source Player ...

... connect its AV1 IN/OUT connector to the recording deck.

B When Using Your Video Recorder As The Recording Deck ...

... connect its AV2 IN/DECODER or AV1 IN/OUT connector to the source player.

C If Another Recorder Is Compatible With The Y/C Signal ...

... connect your recorder's AV1 IN/OUT connector to another recorder.

With **C** connection ...

• When using your recorder as the recording deck, set "AV1 SELECT" to "S-VIDEO" and "AV2 SELECT" to "AV2" (☞ pg. 40).

• When using your recorder as the source player, set the AV1 OUT switch on the rear panel to Y/C (☞ pg. 4).

2 SET RECORDING DECK'S INPUT MODE

Set to AUX. With this video recorder, press **NUMBER** key "0" and/or **TV PROG** to select "L-1" for the AV1 IN/OUT connector, or "L-2" for the AV2 IN/DECODER connector, depending on the connector being used.

• When using the AV2 IN/DECODER connector, make sure "AV2 SELECT" is set to "AV2" (☞ pg. 40).

3 SET EDIT MODE

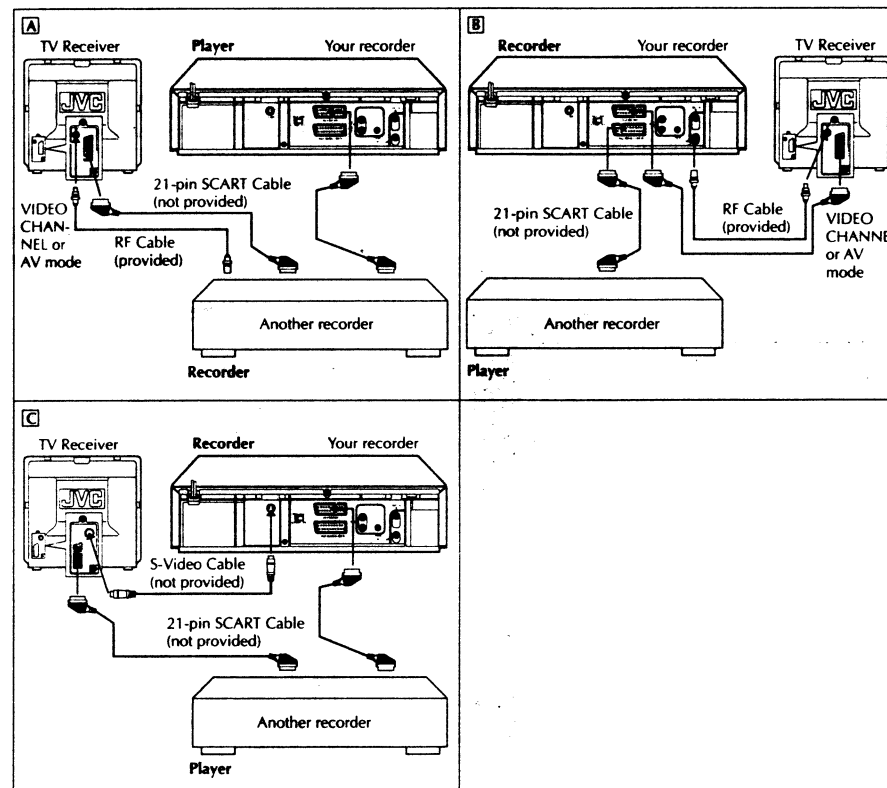
See "Picture Control" on page 37.

4 START SOURCE PLAYER

Engage its Play mode.

5 START RECORDING DECK

Engage its Record mode.



NOTES:

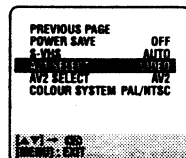
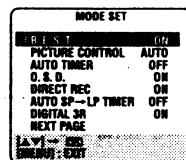
- All necessary cables can be obtained from your dealer.
- For Y/C signal input/output, be sure to use a 21-pin SCART cable that is compatible with the Y/C signal.
- When you select EDIT to dub tapes in step 3, be sure to select AUTO (or NORM when B.E.S.T. is set to OFF) after you finish dubbing the tapes.
- When you use this recorder as the player for editing, be sure to set "O.S.D." to "OFF" before starting (☞ pg. 11).
- If you are using another recorder with S-Video and Audio input/output connectors, you can connect those connectors to this recorder's S-VIDEO and AUDIO input/output connectors.
 - When Using Your Video Recorder As The Source Player ...
 - ... connect its rear panel S-VIDEO and AUDIO output connectors to the recording deck's S-Video and Audio input connectors.
 - When Using Your Video Recorder As The Recording Deck ...
 - ... connect its front panel S-VIDEO and AUDIO input connectors to the source player's S-Video and Audio output connectors.

Then, set the recorder's input mode to "S-1".

AV1 SELECT Setting

Set "AV1 SELECT" to the appropriate mode depending on the type of unit connected to the rear panel AV1 IN/OUT connector of this recorder.

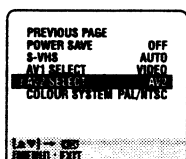
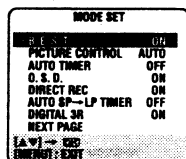
- 1 Press MENU to access the Main Menu screen.
 - 2 Press Δ to move the highlight bar (pointer) to "MODE SET", then press OK or $\triangleright$.
 - 3 Press ∇ to move the highlight bar (pointer) to "AV1 SELECT".
 - 4 Press OK or $\triangleright$ to select "VIDEO" or "S-VIDEO".
 - a-VIDEO : If a connected device's output is compatible only with regular video signals, set "AV1 SELECT" to "VIDEO".
 - b-S-VIDEO : If a connected device's output is compatible with Y/C signals, set "AV1 SELECT" to "S-VIDEO". This setting will let you take advantage of higher-quality S-VHS pictures.
 - 5 Press MENU to return to normal screen.
- If "AV2 SELECT" is set to "DECODER", it is impossible to set "AV1 SELECT" to "S-VIDEO".



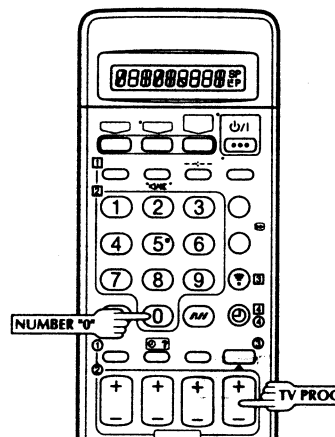
AV2 SELECT Setting

Set "AV2 SELECT" to the appropriate mode depending on the type of unit connected to the rear panel AV2 IN/DECODER connector of this recorder.

- 1 Press MENU to access the Main Menu screen.
 - 2 Press Δ to move the highlight bar (pointer) to "MODE SET", then press OK or $\triangleright$.
 - 3 Press ∇ to move the highlight bar (pointer) to "AV2 SELECT".
 - 4 Press OK or $\triangleright$ to select "AV2", "DECODER" or "SAT".
 - a-AV2 : To use this recorder as the recording deck with the player connected to the AV2 IN/DECODER connector, or to use the satellite tuner connected to the AV2 IN/DECODER connector.
 - b-DECODER : To use a decoder connected to the AV2 IN/DECODER connector.
 - c-SAT : To view a satellite programme with the TV set while the recorder is in Timer mode, in Stop mode, recording or turned off. (pg. 43)
 - 5 Press MENU to return to normal screen.
- If you have a decoder connected to the AV2 IN/DECODER connector, be sure to set "AV2 SELECT" back to "DECODER" after editing.
 - If you're not connecting a decoder to the AV2 IN/DECODER connector, leave "AV2 SELECT" set to "AV2".
 - The default setting is "AV2"; if the recorder's memory backup has expired due to a power cut or because the AC was removed from the recorder, "AV2" will be automatically selected when the power is restored to the recorder. If you are using a decoder, be sure to set "AV2 SELECT" back to "DECODER".
 - If the AV1 OUT switch on the rear panel is set to Y/C, it is impossible to set "AV2 SELECT" to "DECODER".



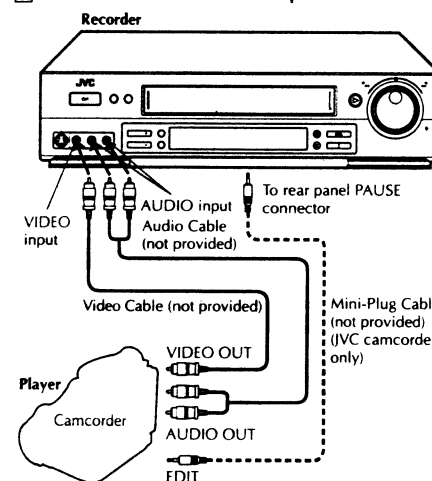
Edit From A Camcorder



NOTES:

- All necessary cables can be obtained from your dealer.
- You can also use another video recorder as the player instead of a camcorder.
- When you select EDIT to dub tapes in step 3, be sure to select AUTO (or NORM when B.E.S.T. is set to OFF) after you finish dubbing the tapes.

A If the camcorder has no S-VIDEO output connector...



You can use a camcorder as the source player and your video recorder as the recorder.

MAKE CONNECTIONS

- A If the camcorder has no S-VIDEO output connector... connect the camcorder's AUDIO/VIDEO OUT connectors to the recorder's front panel AUDIO/VIDEO input connectors.
- B If the camcorder has an S-VIDEO output connector... connect the camcorder's S-VIDEO OUT and AUDIO OUT connectors to the recorder's front panel S-VIDEO and AUDIO input connectors.

- When using a monaural camcorder, connect its AUDIO OUT connector to the AUDIO L input connector on your recorder.
- When a Master Edit Control-equipped JVC camcorder is used, the camcorder is capable of controlling the recorder. Refer to the camcorder's instruction manual for operating procedure.

SET RECORDER'S INPUT MODE

Press NUMBER key "0" and/or TV PROG to select "F-1" for the AUDIO/VIDEO input connectors, or "S-1" for the AUDIO/S-VIDEO input connectors, depending on the connectors being used.

SET EDIT MODE

See "Picture Control" on page 37.

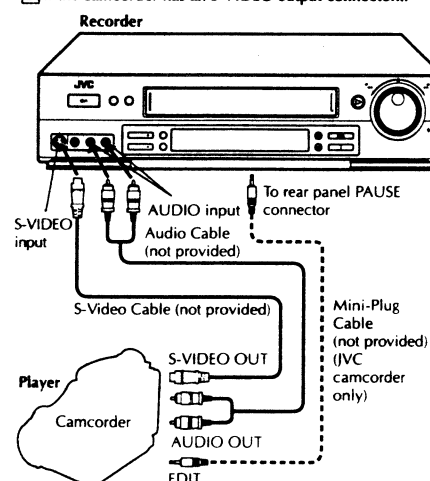
START CAMCORDER

Engage its Play mode.

START RECORDER

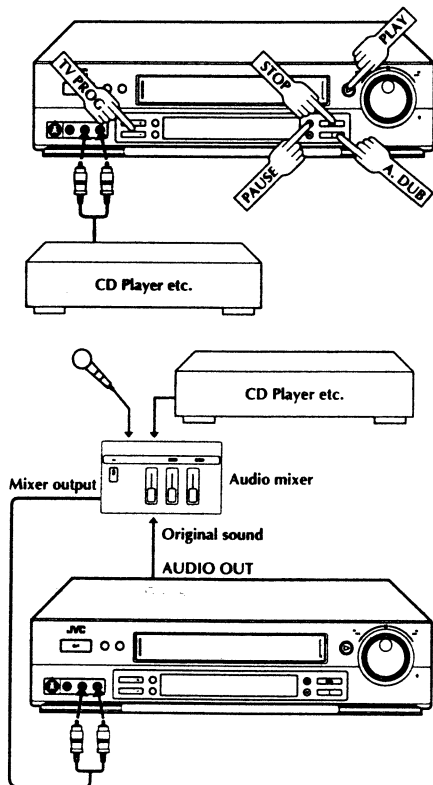
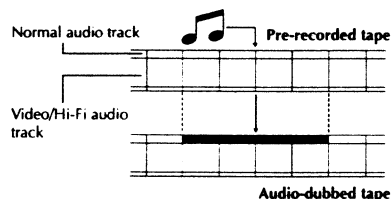
Engage its Record mode.

B If the camcorder has an S-VIDEO output connector...



Audio Dubbing

Audio dubbing replaces the normal audio sound of a previously recorded tape with a new soundtrack.



NOTES:

- When monitoring the sound during Audio Dubbing, the normal soundtrack is automatically selected. If you wish to hear the mixed sound (Hi-Fi + Normal soundtracks), press **AUDIO** on the remote control to select **[L+R]+NORM** (pg. 19).
- Audio dubbing stops automatically when the counter reaches "0:00:00", and the recorder enters the Play mode. Check the counter reading before dubbing.
- Audio dubbing is also possible using the rear panel AV1 IN/OUT or AV2 IN/DECODER connector. When using these connectors, make sure to select the correct input mode in step 2.
- Audio dubbing cannot be performed on a cassette that has had its record safety tab removed.
- When playing back an audio-dubbed tape, press **AUDIO** on the remote control to select the soundtrack you wish to hear (pg. 19).

MAKE CONNECTIONS

Connect an audio component to the AUDIO L + R connectors on the recorder's front panel.

- When connecting monaural equipment, use only the recorder's AUDIO L connector.

SET INPUT MODE

Press **NUMBER** key "0" and/or **TV PROG** so that "F-1" or "S-1" appears in place of a channel number.

LOCATE START POINT

Press **PLAY** to start playback of the tape in your recorder, and press **PAUSE** when you find the point where you want to start dubbing.

ENGAGE AUDIO DUBBING

Press **A. DUB**.

- Your recorder enters the Audio Dubbing Pause mode. ("O" blinks, "P" and "A" light up on the front display panel.)
- To perform audio dubbing with audio mixing, press **AUDIO** on the remote control to select **[L+R]** at this point.
- * Audio dubbing with audio mixing is not possible if you're using a monaural audio component, or if you don't have an audio mixer.

START DUBBING

Engage the audio component's Play mode, then press **PLAY** to start the tape in your recorder. Audio dubbing begins at this point.

- "O" blinks and "P" is displayed on the front display panel.
- To stop dubbing temporarily, press **PAUSE**. Press **PLAY** to resume dubbing.

END AUDIO DUBBING

Press **STOP** to stop the tape in your recorder, and engage the audio component's Stop mode.

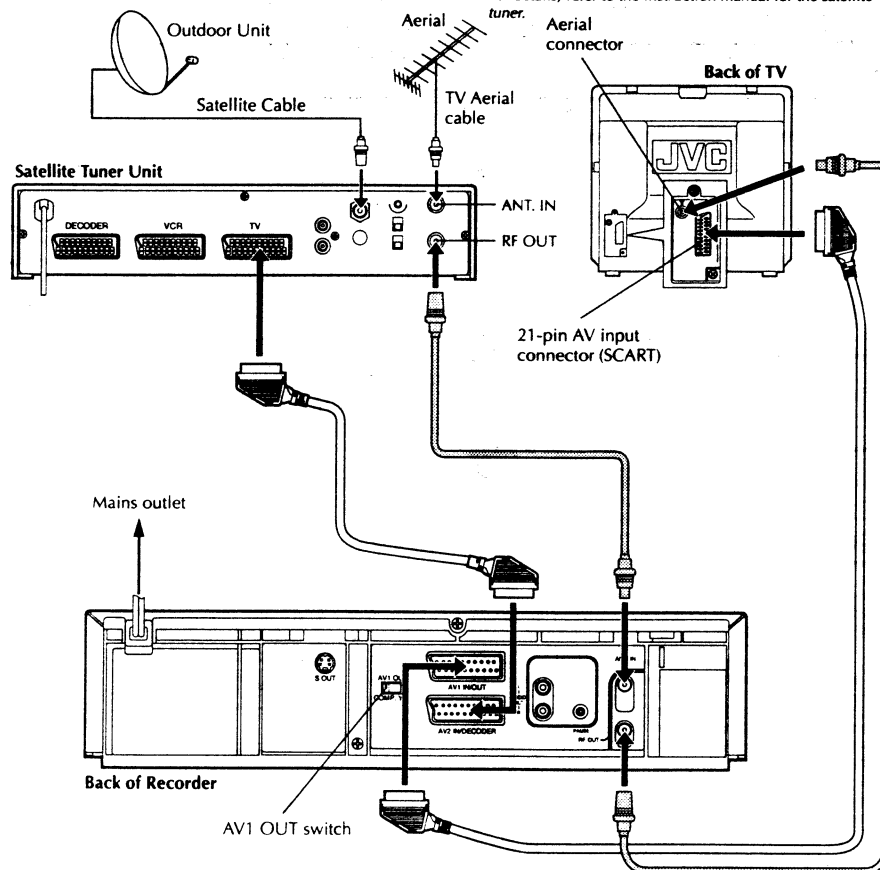
Simple Connections

This is an example of simple connection if you don't have a decoder.

Connect the satellite tuner to the video recorder's AV2 IN/DECODER connector, then connect the recorder's AV1 IN/OUT connector to the TV's 21-pin SCART connector.

NOTES:

- Set "AV2 SELECT" to "AV2". (pg. 40)
- You can use Automatic Satellite Program Recording function (pg. 33) with this connection.
- To view a programme via the satellite tuner, select L-2 mode by pressing **NUMBER** keys and/or **TV PROG** so that "L-2" appears on the display panel.
- For details, refer to the instruction manual for the satellite tuner.



IMPORTANT

When you set "AV2 SELECT" to "SAT" (pg. 40), it is possible to view a satellite broadcast with the TV set to its AV mode even if the recorder is in Timer mode, in Stop mode, recording or turned off. When the recorder is in Stop mode or recording, press **TV/VCR** on the remote control to turn off the VCR indicator on the display panel.

- In this case, be sure to set the **AV1 OUT** switch on the rear panel to **COMP**.

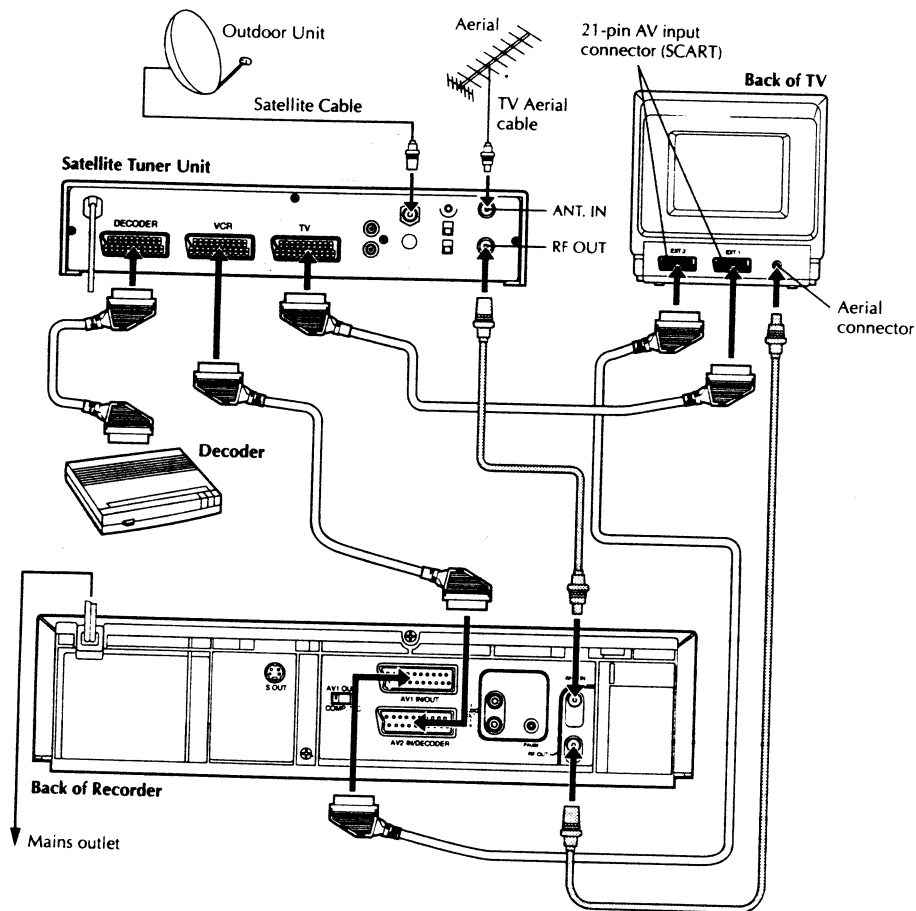
Perfect Connections

This is an example of recommended connection if you have both satellite tuner and decoder.

Connect the decoder to the satellite tuner's connector, AV1 IN/OUT connector to TV's connector, and AV2 IN/DECODER connector to the satellite tuner's connector. Then connect the satellite tuner and TV.

NOTES:

- Set "AV2 SELECT" to "AV2". (pg. 40)
- You can use Automatic Satellite Program Recording function (pg. 33) with this connection.
- To view a programme via the satellite tuner, select L-2 mode by pressing **NUMBER** keys and/or **TV PROG** so that "L-2" appears on the display panel.
- To receive a scrambled broadcast, descramble the signal with the satellite tuner.
- For details, refer to the instruction manual for the satellite tuner and decoder.



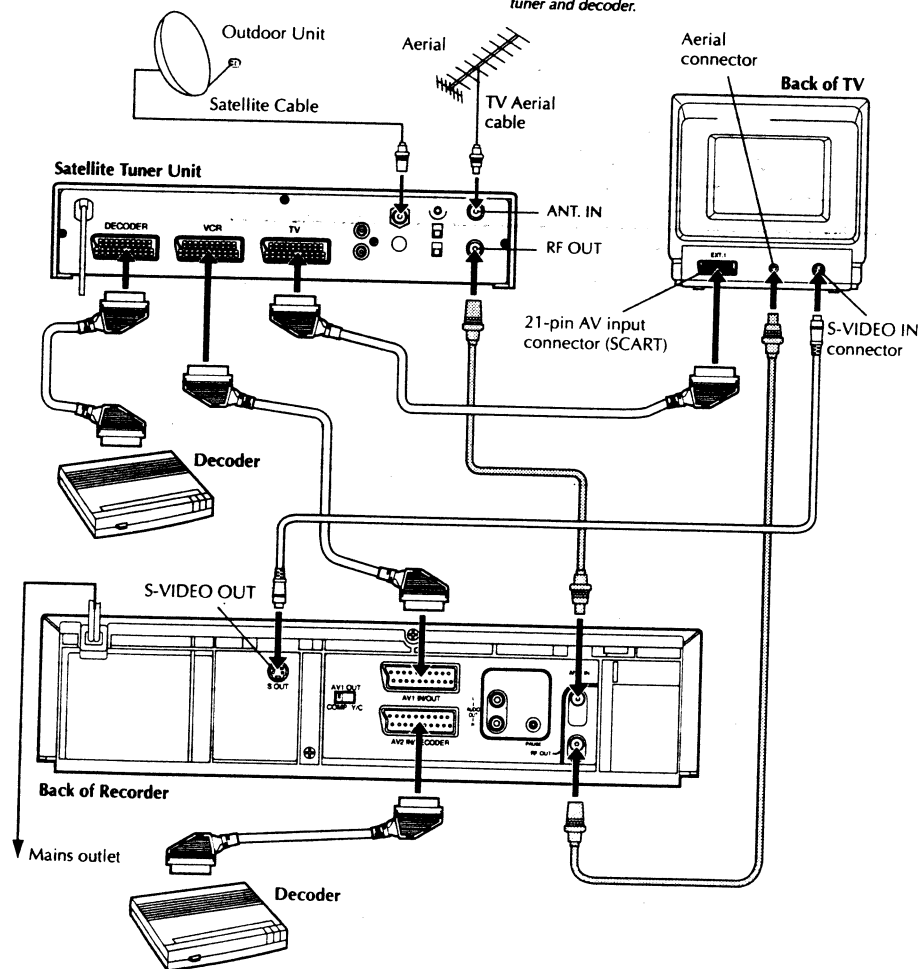
Basic Connections

This is an example of basic connection if you have both satellite tuner and decoder.

Connect the decoder to your recorder's AV2 IN/DECODER connector and AV1 IN/OUT connector to the satellite tuner's connector. Then connect the satellite tuner and TV. If you have a decoder for satellite broadcast, connect it to the satellite tuner's connector.

NOTES:

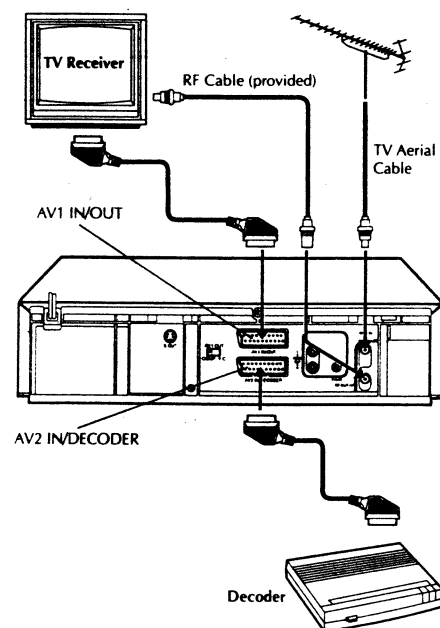
- To record a satellite programme which delivers the Y/C signal, set "AV2 SELECT" to "AV2" and "AV1 SELECT" to "S-VIDEO". You can obtain high-quality S-VHS picture.
- If you connect your recorder and TV via S-Video cable VC-5211 (not provided), you can enjoy high-quality S-VHS pictures.
- Set "AV2 SELECT" to "DECODER" to view a scrambled broadcast. (pg. 40)
- Automatic Satellite Program Recording function is not possible with this connection.
- To view a programme via the satellite tuner, select L-1 mode by pressing **NUMBER** keys and/or **TV PROG** so that "L-1" appears on the display panel.
- For details, refer to the instruction manual for the satellite tuner and decoder.



Connecting/ Using A Decoder

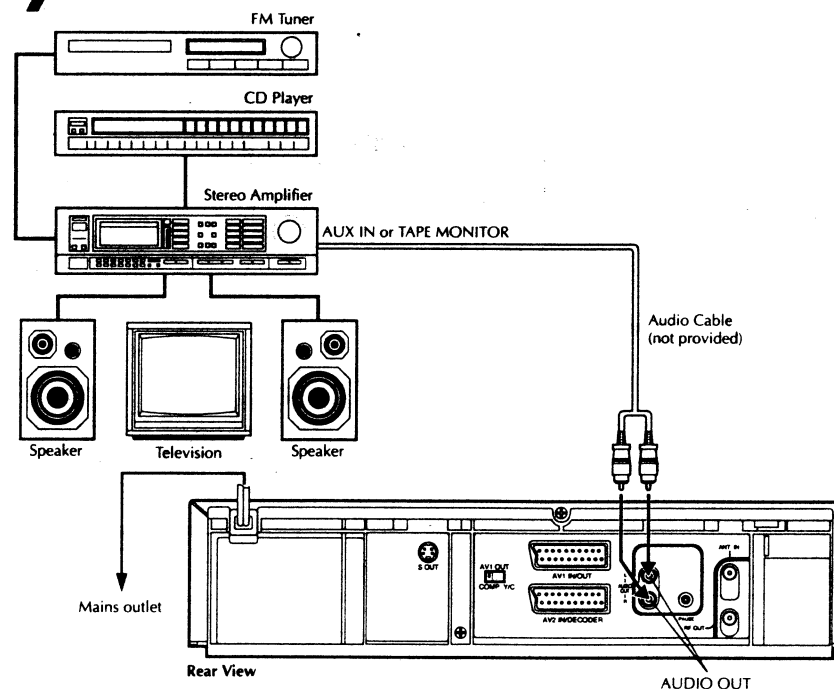
The AV2 IN/DECODER connector can be used as an input terminal for an external decoder (descrambler). Simply connect a decoder and you can enjoy the variety of programming that is available through scrambled channels.

- 1 SELECT INPUT MODE**
Set "AV2 SELECT" to "DECODER". (See pg. 40)
- 2 CONNECT DECODER**
Connect your recorder's AV2 IN/DECODER connector to the decoder's Euroconnector using a 21-pin SCART cable.
- 3 SET TUNER**
Perform the procedure as described in "When Receiving A Scrambled Broadcast" on page 51.



Connecting/ Using A Stereo System

These instructions enable you to connect your video recorder to your Hi-Fi stereo system (if you have one) and listen to the soundtrack through the stereo.



1 MAKE CONNECTIONS

Connect the AUDIO OUT L and R connectors on your video recorder to the AUX IN or TAPE MONITOR terminals on your stereo system's receiver or amplifier.

NOTES:

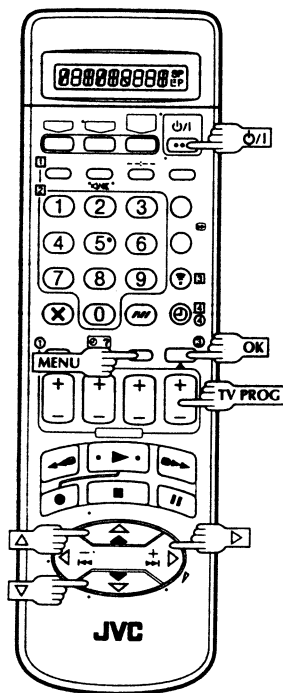
- When connecting your recorder's audio output connectors to a stereo amplifier, make sure you connect L and R correctly.
- If stereo or bilingual TV broadcasts are receivable in your area, this recorder can record them independently of the TV set and play them back through the connected stereo system.
- When listening to sound through the connected stereo system, turn the TV's volume down completely.

CAUTIONS:

- This recorder has a dynamic range of more than 80 dB with regards to its Hi-Fi audio capability. It is recommended that you check the maximum level if you are going to listen to the Hi-Fi audio signals through a stereo amplifier. A sudden surge in the input level to the speakers may damage them.
- Some speakers and televisions are specially shielded to prevent television interference. If both are of the non-shielded type, do not place the speakers adjacent to the TV set as this can adversely affect the video playback picture.

Tuner Set

Turn on the TV and select the VIDEO channel (or AV mode).



IMPORTANT

- Perform the following steps only if —
- Auto Channel Set has not been set correctly by Auto Set Up function or by Preset Download (see pg. 6, 8).
 - you have moved to a different area or if a new station starts broadcasting in your area.

Your recorder needs to memorize all necessary stations in channel positions in order to record TV programmes. Auto Channel Set automatically assigns all receivable stations in your area to call them up by using the TV PROG buttons without going through any vacant channel.

Auto Channel Set

TURN ON THE RECORDER

Press **Power/Standby**.

ACCESS MAIN MENU SCREEN

Press **MENU**.

ACCESS AUTO CH SET SCREEN

Press **Up/Down** to move the highlight bar (pointer) to "AUTO CH SET", then press **OK** or **Enter**.

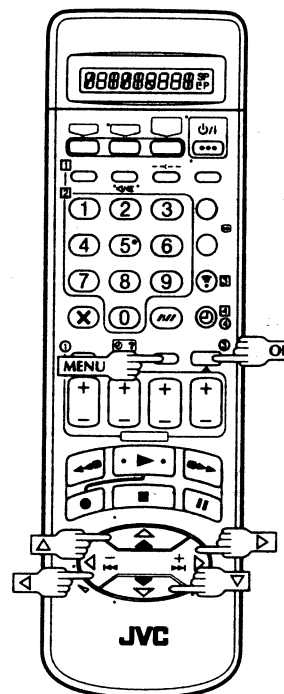


SELECT COUNTRY

Press **Up/Down** to move the highlight bar (pointer) to your country's name, then press **OK** or **Enter**.

SELECT LANGUAGE

Press **Up/Down** to move the highlight bar (pointer) to the language of your choice.



IMPORTANT

- In certain reception conditions, station names may not be stored correctly, and auto Guide Program Number Set may not work properly. If the Guide Program numbers are not set properly, when you timer-record a TV programme using ShowView, the recorder will record a TV programme of a different station. When programming the timer using ShowView, be sure to check whether the channel position on which your recorder receives the broadcasting station you wish to record is selected (see pg. 26, "ShowView Timer Programming").
- Your video recorder memorizes all detected stations even if reception of some of them is poor. In these cases picture quality may be poor. To delete those stations with an unacceptable picture see "Delete A Channel" on page 51.

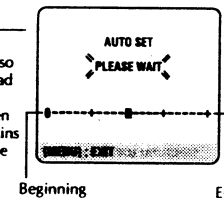
NOTES:

- Fine tuning is performed automatically during Auto Channel Set. If you want to perform it manually, refer to page 54.
- If you perform Auto Channel Set when the aerial cable is not connected properly, "SCAN COMPLETED -NO SIGNAL-" appears on the screen in step 7. When this happens, make sure of the aerial connection and press **OK**; Auto Channel Set will take place again.

PERFORM AUTO CHANNEL SET

Press **OK** twice.

- You can set up the recorder's tuner also by Preset Download (see pg. 8).
- The Auto Set screen appears, and remains on screen while the recorder searches for receivable stations.



VIEW CONFIRMATION SCREEN

After "SCAN COMPLETED" is displayed on the screen for about 5 seconds, the Confirmation screen looking like the one to the right appears. The stations your recorder located appear on a Confirmation screen — channel positions (PR), channels (CH) and station names (ID — see pg. 53). The blueback screen and the programme currently being broadcast by the blinking station appear alternately for 8 seconds each. To view the next page, use the **Up/Down** button on the remote control.

PR	CH	ID	PR	CH	ID
02	C08	SKY*	08	05	WEST
03	10	ZDF	09	C24	BAT1
04	C06	RAI1	11	C23	DSF
05	C31	BOCT	12		
06	C32	BOCT	13		
07	C33	BSAT	14		

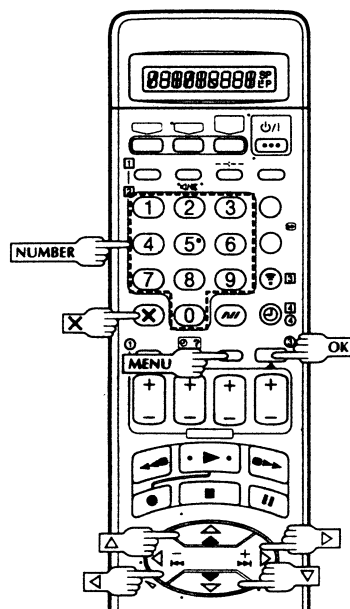
C: Cable

- The stations located in the selected country appear at the top of the list.
- The Guide Program numbers will also be set automatically during Auto Channel Set.

RETURN TO NORMAL SCREEN

Press **MENU**.

- Using the Confirmation screen, you can skip or add channel positions, enter station names and perform other operations. Refer to pages 50 – 54 for the procedures.
- Depending on reception conditions, the stations may not be stored in order, and the station names may not be stored correctly.
- For information on scrambled broadcasts, refer to page 51.



Storing Channels Manually

Store channels that were not stored during Auto Set Up (⇨ pg. 6), Preset Download (⇨ pg. 8) or Auto Channel Set (⇨ pg. 48).

1 ACCESS MAIN MENU

Press **MENU**.

2 ACCESS CONFIRMATION SCREEN

Press $\Delta \nabla$ to move the highlight bar (pointer) to "MANUAL CH SET", then press **OK** or $\triangleright$. The Confirmation screen appears.

3 SELECT POSITION

Press $\Delta \nabla$ $\triangleleft \triangleright$ until an open position in which you want to store a channel begins blinking, then press **OK**. The Manual Channel Set screen appears.

(Ex.) To store in position 12.

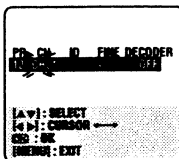
PR	CH	ID	PR	CH	ID
01	25	ARD	06	C26	E-SP
02	C08	SKY1	09	55	WEST
03	10	ZDF	10	C24	SAT1
04	C26	SAT1	11	C23	OSF
05	C31	BBC1	12	C25	ESPN
06	C32	BBC2	13	---	---
07	C33	3SAT	14	---	---

The blueback screen and the programme currently being broadcast by the selected channel appear alternately for 8 seconds each.

4

SELECT BAND

Press $\Delta \nabla$ to change the band between CH (regular) and CC (cable), then press $\triangleright$.



The blueback screen and the programme currently being broadcast by the selected channel appear alternately for 8 seconds each.

5

INPUT CHANNEL

Press the **NUMBER** keys to input the channel number you want to store.

- Input "0" before any single number entries.
- To input the registered station name (ID - ⇨ pg. 53), press $\triangleright$ until "----" (ID setting) begins blinking, then press $\Delta \nabla$.
- For fine tuning adjustment, press $\triangleright$ until "+/-" begins blinking, then press $\Delta \nabla$. While tuning, "+" or "-" appears.
- When storing a channel that sends scrambled broadcasts, press $\triangleright$ until "OFF" (Decoder setting) blinks, then press $\Delta \nabla$ to set "DECODER" to "ON" ("OFF" is the default setting).
- When "AV2 SELECT" is set to "AV2", the "DECODER" setting cannot be changed (⇨ pg. 40).

6

ENTER NEW CHANNEL INFORMATION

Press **OK** and the Confirmation screen appears.

- Repeat steps 3 through 6 as necessary.

7

CLOSE CONFIRMATION SCREEN

Press **MENU**.

- To change positions, see "Change Station Channel Position" (⇨ pg. 51).
- If you wish to set station names other than the ones registered in your recorder, ⇨ "Set Stations (B)" on page 52.

ATTENTION

Guide Program numbers are not set when channels are stored manually. If an attempt is made at timer programming with ShowView in this state, the "GUIDE PROG SET" screen appears; set the Guide Program numbers on this screen. ⇨ "ATTENTION - Regarding Guide Program Number Set" on pg. 27.

Or perform "Guide Program Number Set" (⇨ pg. 58).

Delete A Channel

Perform steps 1 and 2 of "Storing Channels Manually" on page 50 to access the Confirmation screen before continuing.

1

SELECT ITEM

Press $\Delta \nabla$ $\triangleleft \triangleright$ until the item you want to delete begins blinking.

2

DELETE CHANNEL

Press **X**.

- The item directly beneath the cancelled one moves up one line.
- Repeat steps 1 and 2 as necessary.

3

CLOSE CONFIRMATION SCREEN

Press **MENU**.

Change Station Channel Position

Perform steps 1 and 2 of "Storing Channels Manually" on page 50 to access the Confirmation screen before continuing.

1

SELECT ITEM

Press $\Delta \nabla$ $\triangleleft \triangleright$ until the item you want to move begins blinking. Then press **OK** and the station name (ID) and its channel (CH) number begin blinking.

2

SELECT NEW POSITION

Press $\Delta \nabla$ $\triangleleft \triangleright$ to move the station to the new channel position, then press **OK**.

Example: If you moved the station in position 4 to position 2, the stations originally in positions 2 and 3 each move down one space.

PR	CH	ID	PR	CH	ID	PR	CH	ID	PR	CH	ID
01	25	ARD	06	C26	E-SP	01	25	ARD	06	C26	E-SP
02	C08	SKY1	09	55	WEST	02	C08	SKY1	09	55	WEST
03	10	ZDF	10	C24	SAT1	03	10	ZDF	10	C24	SAT1
04	C08	HAB1	11	C23	OSF	04	10	ZDF	11	C23	OSF
05	C31	BBC1	12	C25	ESPN	05	C31	BBC1	12	C25	ESPN
06	C32	BBC2	13	---	---	06	C32	BBC2	13	---	---
07	C33	3SAT	14	---	---	07	C33	3SAT	14	---	---

- Repeat steps 1 and 2 as necessary.

3

CLOSE CONFIRMATION SCREEN

Press **MENU**.

NOTE:

The characters available for the station name (ID) are A-Z, 0-9, -, *, +, = (space) (maximum of 4).

When Receiving A Scrambled Broadcast

SELECT DECODER MODE

Set "AV2 SELECT" to "DECODER" (⇨ pg. 40).

1

ACCESS CONFIRMATION SCREEN

Perform steps 1 and 2 of "Storing Channel Manually" on page 50.

2

SELECT POSITION

Press $\Delta \nabla$ $\triangleleft \triangleright$ to select the channel position broadcasting scrambled programmes, then press **OK** twice.

3

CHANGE DECODER SETTING

Press $\triangleright$ until "OFF" (decoder setting) begins blinking, and set it to "ON" by pressing $\Delta \nabla$.

4

RETURN TO CONFIRMATION SCREEN

Press **OK**.

5

- Repeat steps 3 through 5 as necessary.

6

CLOSE CONFIRMATION SCREEN

Press **MENU**.

ATTENTION

If channel positions are changed or deleted, the Guide Program numbers that have been set are reset.

- Example 1: If a channel is deleted, all the Guide Program numbers are reset.
- Example 2: If a channel is changed from position 4 to position 2, the Guide Program numbers above position 4 are reset.
- Example 3: If a channel is changed from position 4 to position 6, the Guide Program numbers above position 6 are reset.
- In Examples 2 and 3, if the channel is moved to position 10 before **OK** is pressed, the Guide Program numbers above position 10 are reset.
- If an attempt is made at timer programming with ShowView in this state, the "GUIDE PROG SET" screen appears; set the Guide Program numbers on this screen. ⇨ "ATTENTION - Regarding Guide Program Number Set" on pg. 27.
- Or perform "Guide Program Number Set" (⇨ pg. 58).

Set Stations (A)

Set station names that are registered in your recorder.

Perform steps 1 and 2 of "Storing Channels Manually" on page 50 to access the Confirmation screen before continuing.

1 SELECT ITEM

Press $\Delta \nabla \triangleleft \triangleright$ until the item you want begins blinking.

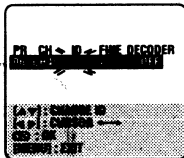
2 ACCESS MANUAL CHANNEL SET SCREEN

Press OK twice.

3 SELECT NEW STATION

Press $\triangleright$ until the station name (ID) begins blinking, then press $\Delta \nabla$ until the new station's name (ID) you want to store begins blinking.

Registered station names (cf pg. 53) appear as you press $\Delta \nabla$.



4 SWITCH STATIONS

Press OK.

- The Confirmation screen appears.
- Repeat steps 1 through 4 as necessary.

5 CLOSE CONFIRMATION SCREEN

Press MENU.

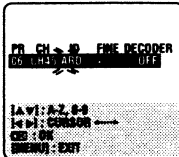
Set Stations (B)

Set station names other than the ones registered in your recorder.

Perform steps 1 and 2 of "Storing Channels Manually" on page 50 to access the Confirmation screen and then perform step 1 and 2 of "Set Stations (A)" on the left before continuing.

1 SELECT STATION NAME CHARACTER

Press $\triangleright$ until the first letter of the station name begins blinking.



2 ENTER NEW CHARACTER

Press $\Delta \nabla$ to cycle through the characters (A-Z, 0-9, *, +, -, space) and stop when the desired character is indicated, then press $\triangleright$ to enter. Enter the remaining characters the same way (maximum of 4). After entering all characters, press OK.

- The Confirmation screen appears.
- If you make a mistake, press $\triangleleft$ until the incorrect character begins blinking. Then enter the correct character by pressing $\Delta \nabla$.

3 CLOSE CONFIRMATION SCREEN

Press MENU.

TV Station And ID List

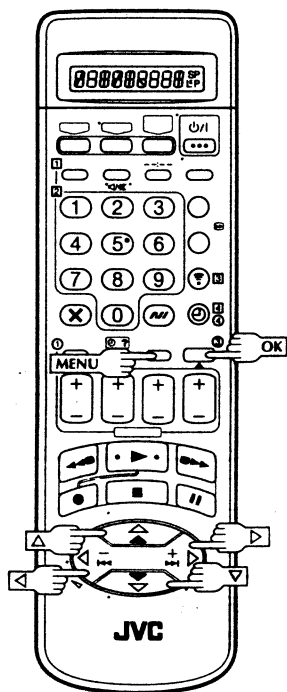
ID*	STATION NAME
1000	TV1000
3SAT	3SAT
ADLT	ADULT
ANT3	ANTENA3
ARD	ARD
ARTE	ARTE
BBC	BBC GROUP
BBC1	BBC1
BBC2	BBC2
BR3	BAYERN3
C+	CANAL PLUS
C1	PORTUGUSES
CAN5	CANALE5
CANV	KETNET CANVAS
CH4	CHANNEL4
CH5	CHANNEL5
CHLD	CHILD
CINE	CINEMA
CLUB	TELECLUB
CMT	CNN
CNN	CNN
CSUR	ANDALUCIA
DISC	DISCOVERY
DR	DR TV
DRS	DRS
DSF	DSF
ETB1	ETB1
ETB2	ETB2
EURO	EURONEWS
EUSP	EUROSPORTS
FEMM	TEMAMAN
FILM	FILM
FNET	FILMNET
FR2	France2
FR3	France3
GALA	GALAVISION
HR3	HESSEN3
INFO	INFO-KANAL
ITA1	ITALIA1
ITA7	ITALIA7
ITV	ITV
JSTV	JSTV
KA2	KA2
KAB1	KABEL1
KAN2	KANAL2
LOCA	LOCAL
M6	M6
MBC	MBR
MCM	MCM
MDR	MDR
MOVE	MOVIE
MTV	MTV
MTV3	MTV3
N3	NORD3
N-TV	N-TV
NBC	NBC SUPER
NDR3	NDR3
NED1	NED1
NED2	NED2
NED3	NED3
NEWS	NICKELODEON
NICK	NRK
NRK	NRK2
NRK2	ODEON
ODE	ORF1
ORF1	

ID*	STATION NAME
ORF2	ORF2
ORF3	ORF3
OWL3	OWL3
PREM	PREMIERE
PRO7	PRO7
RAI1	RAI1
RAI2	RAI2
RAI3	RAI3
RET4	RETE4
21	TELE21
RTBF	RTBF1 or 2
RTL	RTL
RTL2	RTL2
RTL4	RTL4
RTL5	RTL5
RTP	SCHWEIZ4
S4	SAT1
SAT1	SAT1
SBS	SBS
SHOW	SHOW
SIC	SOCIEDADE
SKY	SKY CHANNEL
SKYN	SKY NEWS
SPRT	SPORT
SRTL	SUPER RTL
STAR	STAR-TV
SVT1	SVT1
SVT2	SVT2
SWR	SUEDWEST3
TCC	TCC
TELE	TELE
TEL5	TELE5
TF1	TF1
TM3	TM3
TMC	TELEMONTECARLO
TNT	TNT INT
TRT	TRT INT
TSI	TSI
TSR	TSR
TV1	BRTN TV1
TV2	TV2
TV3	TV3
TV4	TV4
TV5	TV5
TV6	TV6
TVE1	TVE1
TVE2	TVE2
TVG	TV GALICIA
TVI	TV INDEPENDENT
TVN	TV NORGE
VCR	VIDEO
VERO	VERONICA
VH-1	VH-1
VIVA	VIVA
VIV2	VIVA2
VMTV	VIDEO MUSIC
VOX	VOX
VT4	VT4
VTM	VTM
WDR1	West1
WDR3	West3
YLE1	YLE1
YLE2	YLE2
ZDF	ZDF
ZTV	ZTV

* The "ID" abbreviation is what is shown on-screen in lieu of the station name. The "ID" abbreviation is listed in the Confirmation screen and is displayed on the TV screen when the recorder is tuned to a different station.

Fine-Tuning Channels Already Stored

Perform steps 1 and 2 of "Storing Channels Manually" on page 50 to access the Confirmation screen before continuing.



1 SELECT CHANNEL TO FINE-TUNE

Press Δ ∇ until the channel you want to tune begins blinking.

2 ACCESS MANUAL CHANNEL SET SCREEN

Press **OK** twice. The Manual Channel Set screen appears.

3 PERFORM TUNING

Press $\triangleright$ until "+/-" begins blinking, then press Δ ∇ until the picture is its clearest. Then press **OK**.

- The Confirmation screen appears.
- Repeat steps 1 through 3 as necessary.

4 CLOSE CONFIRMATION SCREEN

Press **MENU**.

Video Channel Set

Video Channel (RF Output Channel) is the channel on which your TV receives picture and sound signals from the video recorder through the RF cable.

IMPORTANT

- Perform the following steps only if —
- interference appears in the TV picture after you have moved to a different area or a new station has started broadcasting in your area.
 - you change the connection between your recorder and TV from RF connection to AV or S-VIDEO connection, or vice versa.

If you have connected the video recorder to your TV via both the provided RF cable and a 21-pin SCART cable (AV connection), or via the provided RF cable, an S-Video cable and an audio cable (S-VIDEO connection), since you do not need the video channel you have to set the video channel to off.

If you have connected the video recorder to your TV via the RF cable only (RF connection), you have to set the correct video channel.

Before performing the following steps, make sure the recorder's power is off and there is no cassette inserted in the recorder.

ACCESS VIDEO CHANNEL SET MODE

- 1 Hold down **STOP** (■/▲) on the recorder until the display panel shows the following.

10 UT 36

2 SET RF OUTPUT SYSTEM

The blinking number on the display indicates the RF output system of your country. If you have selected MAGYARORSZAG (36), CIESKA REPUBLIKA (42), POLSKA (48) or OTHER EASTERN EUROPE (EE) for the country setting (pg. 6, 10), press Δ ∇ to set to "2". For other countries, set to "1". Then press **OK**.

(1: B/G 2: D/K)

20 UT 36

3 SET VIDEO CHANNEL

With AV Connection or S-VIDEO Connection

Press **TV PROG** — until the display panel shows "1OUT—" (or "2OUT—").

10 UT --

- Now the video channel is set to off.

With RF Connection

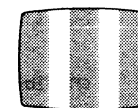
Press **TV PROG** + or — to set the video recorder to a vacant channel between 22 and 69 which is not occupied by any local station in your area.

(Ex.) If channel 50 is available in your area

10 UT 50

Then set your TV to UHF channel 50.

- If the two vertical white bars appear clearly on the screen as shown to the right, go to step 4.
- If the two vertical white bars do not appear clearly, re-set the video recorder to another vacant channel and try again.



NOTES:

- If you set the video recorder to a channel which is occupied by a local station or has neighbouring channels that are occupied by local stations, the picture reception quality will be affected and some interference noise will appear on the TV screen. Be sure to select a vacant channel which has no broadcast on neighbouring channels.
- If you cannot obtain the two vertical white bars clearly with any channel between 22 and 69, consult your JVC dealer.

EXIT VIDEO CHANNEL SET MODE

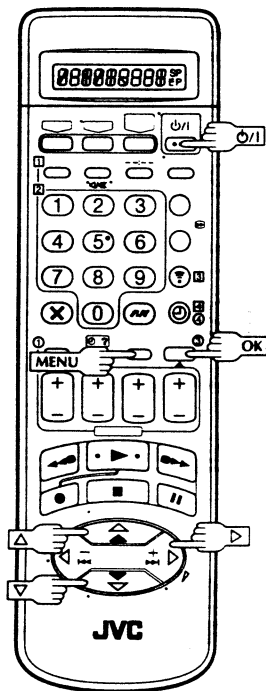
Press **OK** on the remote control.

With AV Connection or S-VIDEO Connection:
To view picture signals from the video recorder, set your TV to its AV mode.

With RF Connection:
The channel on which the screen in step 3 appears clearly is your video channel.
To view picture signals from the video recorder, set your TV to the Video Channel.

Clock Set

Turn on the TV and select the VIDEO channel (or AV mode).



Just Clock

The Just Clock function provides accurate time keeping through automatic adjustments at regular intervals, by reading data from a PDC signal.

The Just Clock option can be set "ON" or "OFF" at the Clock Set screen (the default setting is "OFF"). Press **OK** until the Just Clock setting begins blinking, then press Δ / ∇ to change the setting.

IMPORTANT: If you turn off Just Clock, the accuracy of your recorder's built-in clock may be reduced, which could adversely affect timer recording. We recommend you to keep Just Clock on. In cases where the clock setting data from a PDC signal is incorrect, however, you are advised to keep Just Clock set to "OFF".

IMPORTANT

If you performed Auto Set Up (pg. 6), Preset Download (pg. 8) or Auto Channel Set (pg. 48), without ever having set the clock previously, the recorder's built-in clock is also set automatically.

Perform the following steps only if —

— Auto Clock Set has not been performed correctly by Auto Set Up, Preset Download or Auto Channel Set.

or

— the recorder's memory backup has expired.

or

— you want to change Just Clock setting (pg. "Just Clock" in the left column).

TURN THE RECORDER ON

Press ψ /I.

ACCESS MAIN MENU SCREEN

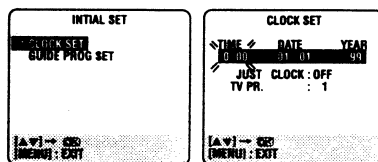
Press MENU.

ACCESS INITIAL SET SCREEN

Move the highlight bar (pointer) to "INITIAL SET" by pressing Δ / ∇ , then press **OK** or $\triangleright$.

ACCESS CLOCK SET SCREEN

Move the highlight bar (pointer) to "CLOCK SET" by pressing Δ / ∇ , then press **OK** or $\triangleright$. The Clock Set screen appears.



NOTE:

When you have selected MAGYARORSZAG (36), CESKA REPUBLIKA (42), POLSKA (48) or OTHER EASTERN EUROPE (EE) for the country setting (pg. 6, 10), you cannot use Just Clock function. Skip steps 6 and 7 on page 57.

SET DATE AND TIME

Press Δ / ∇ to set the time, then press **OK** or $\triangleright$. The "date" display begins blinking. Repeat the same procedure to set the date and year.

- When you set the time, press and hold Δ / ∇ to change the time by 30 minutes.
- When you set the date, press and hold Δ / ∇ to change the date by 15 days.

SET JUST CLOCK

The default setting is "OFF". Set as desired by pressing Δ / ∇ , then press **OK** or $\triangleright$.

- For the Just clock function, pg. "Just Clock" on page 56.
- If you set to "OFF", you can disregard the next step as you won't be able to receive regular clock adjustments.

SET CLOCK DATA SOURCE CHANNEL POSITION

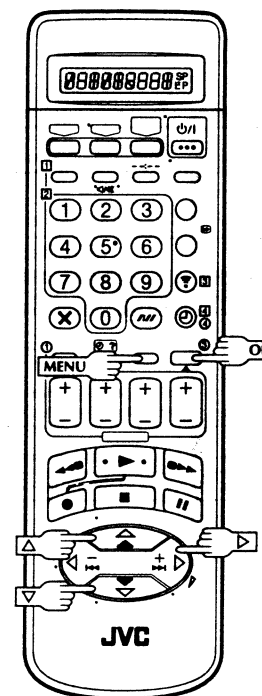
The recorder is preset to receive clock setting and adjustment data from channel position 1. Press Δ / ∇ to set the channel position to the number representing the station transmitting clock setting data, then press **OK** or $\triangleright$.

START CLOCK OPERATION

Press MENU.

NOTES:

- Just Clock (when set to "ON") adjusts the recorder's built-in clock every hour, except for 23:00, 0:00, 1:00 and 2:00.
- Just Clock is not effective when ...
 - the recorder's power is on.
 - the recorder is in the Timer mode.
 - a difference of more than 3 minutes exists between the built-in clock's time and the actual time.
 - the recorder is in the Auto Satellite Prog Rec mode (pg. 33).
 - the recorder is in the Power Save mode (pg. 12).
- If Just Clock is set to "ON", the recorder's clock is automatically adjusted at the start/end of Summer Time.
- Just Clock may not function properly depending on the reception condition.



ShowView Setup

IMPORTANT

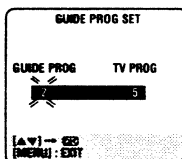
Normally, Auto Set Up (⏏ pg. 6), Preset Download (⏏ pg. 8) or Auto Channel Set (⏏ pg. 48) sets the Guide Program Numbers automatically. You need to set the Guide Program Numbers manually only in the following cases.

- When timer-programming with ShowView, the channel position, where the station you wish to record is received on your recorder, is not selected or when you add a channel after Auto Set Up or Auto Channel Set has taken place.
 - Set the Guide Program Number for that station manually.
- When you delete a channel or change channel positions manually after Auto Set Up or Auto Channel Set has taken place.
 - Set the Guide Program Numbers for all the receivable stations manually.
- When you wish to timer-record a satellite programme with ShowView.
 - Set the Guide Program Numbers for all satellite broadcasts received on your satellite tuner.

Turn on the TV and select the VIDEO channel (or AV mode).

Guide Program Number Set

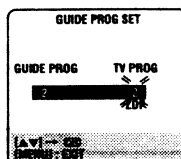
- 1 ACCESS MAIN MENU SCREEN**
Press MENU.
- 2 ACCESS INITIAL SET SCREEN**
Press Δ / ∇ to move the highlight bar (pointer) to "INITIAL SET", then press OK or $\triangleright$.
- 3 ACCESS GUIDE PROG SET SCREEN**
Press Δ / ∇ to move the highlight bar (pointer) to "GUIDE PROG SET", then press OK or $\triangleright$.
- 4 ENTER GUIDE PROG NUMBER**
Press Δ / ∇ or NUMBER keys to enter the Guide Program number for the desired station as shown in the TV listings. Then press OK or $\triangleright$.



(Ex.: When inputting the Guide Program number 2 for ZDF.

ENTER RECEIVING CHANNEL POSITION NUMBER

- 5** Press Δ / ∇ or NUMBER keys to input the number of the recorder's channel position on which the Guide Program number's broadcast is received. Then press OK or $\triangleright$.



(Ex.: If ZDF is received on channel position 2.

- If the satellite broadcast is received on your recorder's auxiliary channel "L-2", select "L-2" for the channel position.
- Repeat steps 4 and 5 as necessary.

RETURN TO NORMAL SCREEN

- 6** Press MENU.

Guide Program Number

Guide Program (GUIDE PROG) number refers to the assigned TV station numbers, according to broadcast area, for ShowView timer recording. The Guide Program numbers can be found in most TV listings.

TROUBLESHOOTING

Before requesting service for a problem, use this chart and see if you can repair the trouble yourself. Small problems are often easily corrected, and this can save you the trouble of sending your video recorder off for repair.

POWER

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. No power is applied to the recorder.	• The mains power cord is disconnected.	Connect the mains power cord.
2. The clock is functioning properly, but the recorder cannot be powered.	• "⊖" is displayed on the display panel with Auto Timer set to "OFF".	Press the ⊖ button to turn the "⊖" indicator off.
3. The remote control won't function.	• The batteries are discharged.	Replace the dead batteries with new ones.

TAPE TRANSPORT

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. The tape does not run during recording.	• "⏏" is displayed on the display panel.	Press PLAY to turn the "⏏" indicator off.
2. The tape will not rewind or fast-forward.	• The tape is already fully rewound or fast-forwarded.	Check the cassette.

PLAYBACK

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. The playback picture does not appear while the tape is running.	• If you're using the RF OUT connection the TV receiver's channel selector is not set to the VIDEO channel. ... the recorder's VIDEO channel has not been correctly set. • If you're using the AV or S-VIDEO connection, the TV receiver is not set to the AV mode.	If you are using the RF OUT connection set the TV receiver to the VIDEO channel. ... perform "Video Channel Set". (⏏ pg. 55) If you are using the AV or S-VIDEO connection, set the TV to its AV mode.
2. Noise appears during visual search.	• This is normal.	
3. Noise appears during normal playback.	• The automatic tracking mode is engaged.	Try manual tracking. (⏏ pg. 17)
4. The playback picture is blurred or interrupted while TV broadcasts are clear.	• The video heads may be dirty.	Consult your JVC dealer.
5. Breaks are noticeable in Hi-Fi soundtrack.	• Automatic tracking is engaged.	Engage and adjust tracking manually. (⏏ pg. 17)

RECORDING

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. Recording cannot be started.	• There is no cassette loaded, or the cassette loaded has had its Record Safety tab removed.	Insert a cassette, or using adhesive tape, reseal the slot where the tab was removed.
2. TV broadcasts cannot be recorded.	• "L-1", "L-2", "F-1" or "S-1" has been selected as the input mode.	Set to the desired channel.
3. Tape-to-tape editing is not possible.	• The source (another video recorder, camcorder) has not been properly connected. • All necessary power switches have not been turned on. • The input mode is not correct.	Confirm that the source is properly connected. Confirm that all units' power switches are turned on. Set the input mode to "L-1", "L-2", "F-1" or "S-1".
4. Camcorder recording is not possible.	• The camcorder has not been properly connected. • The input mode is not correct.	Confirm that the camcorder is properly connected. Set the input mode to "L-1", "L-2", "F-1" or "S-1".

TIMER RECORDING

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. Timer recording won't work.	- The clock and/or the timer have been set incorrectly. - The timer is not engaged.	Re-perform the clock and/or timer settings. Press ⏸ and confirm that "⏸" is displayed on the display panel.
2. Timer programming is not possible.	Timer recording is in progress.	Timer programming can't be performed while a timer recording is in progress. Wait until it finishes.
3. "⏸" and "⏸" on the display panel won't stop blinking.	The timer is engaged but there's no cassette loaded.	Load a cassette with the Record Safety tab intact, or cover the hole using adhesive tape.
4. The cassette is automatically ejected, and "⏸" and "⏸" on the display panel won't stop blinking.	The loaded cassette has had its Record Safety tab removed.	Remove the cassette and cover the hole with adhesive tape, or insert a cassette with the Record Safety tab intact.
5. "⏸" blinks for 10 seconds and the Timer mode is disengaged.	⏸ has been pressed when there are no programs in memory, or the timer record information has been programmed incorrectly.	Check the programmed data and re-program as necessary, then press ⏸ again.
6. The cassette is automatically ejected, the power shuts off and "⏸" and "⏸" won't stop blinking.	The end of the tape was reached during timer recording.	The programme may not have been recorded in its entirety. Next time make sure you have enough time on the tape to record the entire programme.
7. ShowView does not timer-record properly.	The recorder's channel positions have been set incorrectly.	Refer to "Guide Program Number Set" and re-perform the procedure (ⓘ pg. 58).

OTHER PROBLEMS

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. Whistling or howling is heard from the TV during camcorder recording.	- The camcorder's microphone is too close to the TV. - The TV's volume is too high.	Position the camcorder so its microphone is away from the TV. Turn the TV's volume down.
2. When scanning channels, some of them are skipped over.	Those channels have been designated to be skipped.	If you need the skipped channels, restore them (ⓘ pg. 50).
3. The channel cannot be changed.	Recording is in progress.	Press PAUSE to pause the recording, change channels, then press PLAY to resume recording.
4. Channel settings that were made manually seem to have changed or disappeared.	After the manual settings were made, Auto Channel Set was performed.	Perform manual setting again.
5. No channels are stored in the recorder's memory.	The TV aerial cable was not connected to the recorder when Auto Set Up was performed.	Connect the TV aerial cable to the recorder properly and turn off the recorder power once, then turn the recorder power back on again. The recorder will try Auto Set Up again (ⓘ pg. 6).
6. The remote control won't operate the TV or satellite tuner.	The remote control brand setting is incorrect.	Re-set the remote control to the correct brand (ⓘ pg. 35, 36).

PLAYBACK

- Q. What happens if the end of the tape is reached during playback or search?**
A. The tape is automatically rewound to the beginning.
- Q. Can the video recorder indefinitely remain in the still mode?**
A. No. It stops automatically after 5 minutes to protect the heads.
- Q. During search, slow, still and frame-by-frame playback, I can't hear any audio. What's the problem?**
A. This is normal.
- Q. When returning from multi-speed search to normal playback, the picture is disturbed. Should I be concerned about this?**
A. No, it is normal.
- Q. Noise bars appear during multi-speed search. What's the problem?**
A. This is normal.
- Q. Sometimes, during Index Search, the video recorder can't find the programme I want to see. Why not?**
A. There may be index codes too close together.

RECORDING

- Q. When I pause and then resume a recording, the end of the recording before the pause is overlapped by the beginning of the continuation of recording. Why does this happen?**
A. This is normal. It reduces distortion at the pause and resume points.
- Q. Can the video recorder indefinitely remain in the Record-Pause mode?**
A. No. The video recorder goes to its Stop mode automatically after 5 minutes to protect the heads.
- Q. What happens if the tape runs out during recording?**
A. The video recorder automatically rewinds it to the beginning.

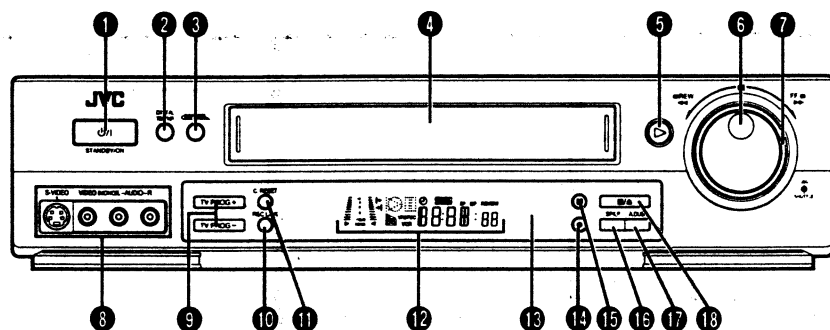
TIMER RECORDING

- Q. "⏸" and "⏸" remain lit on the display panel. Is there a problem?**
A. No. This is a normal condition for a timer recording in progress.
- Q. Can I programme the timer while I'm watching a tape or a TV broadcast?**
A. You won't see the picture as it is replaced by the on-screen menu, but the audio from the programme or tape you're viewing can be heard.
- Q. Is it possible to timer-record a TV programme broadcast in 2000?**
A. Yes, it is possible.

ATTENTION

This recorder contains microcomputers. External electronic noise or interference could cause malfunctioning. In such cases, switch the recorder off and unplug the mains power cord. Then plug it in again and turn the recorder on. Take out the cassette. After checking the cassette, operate the unit as usual.

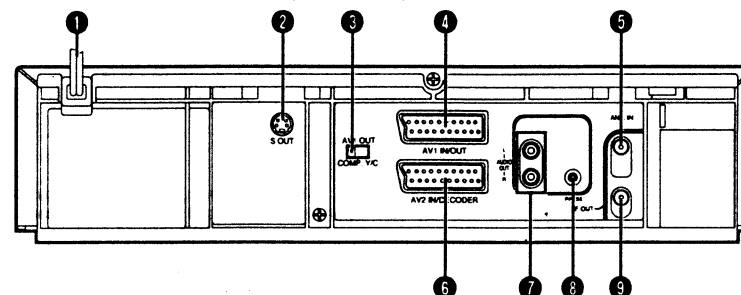
FRONT VIEW



Attach the provided connector cover when you do not use the front panel connectors.

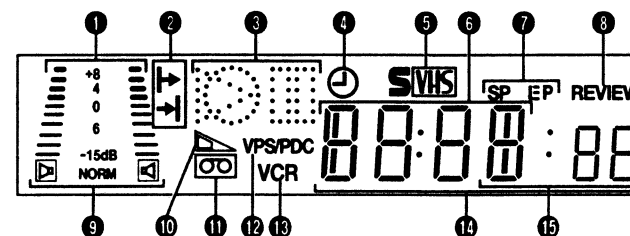
- ① STANDBY/ON ϕ /I Button $\Rightarrow$ pg. 6
- ② DIGITAL TBC/NR Button $\Rightarrow$ pg. 18
- ③ REVIEW Button $\Rightarrow$ pg. 19
- ④ Cassette Loading Slot
- ⑤ PLAY Button $\Rightarrow$ pg. 15
- ⑥ JOG Dial $\Rightarrow$ pg. 16
- ⑦ SHUTTLE Ring $\Rightarrow$ pg. 15 – 17
- ⑧ S-VIDEO/VIDEO/AUDIO Input Connectors $\Rightarrow$ pg. 41
- ⑨ TV PROG +/- Buttons $\Rightarrow$ pg. 20
- ⑩ REC LINK Button $\Rightarrow$ pg. 33
- ⑪ Counter Reset (C. RESET) Button $\Rightarrow$ pg. 21
- ⑫ Display Panel $\Rightarrow$ pg. 63
- ⑬ Infrared Beam Receiving Window
- ⑭ RECORD Button $\Rightarrow$ pg. 20
- ⑮ PAUSE Button $\Rightarrow$ pg. 16
- ⑯ SP/LP Button $\Rightarrow$ pg. 20
- ⑰ Audio Dubbing [A. DUB] Button $\Rightarrow$ pg. 42
- ⑱ STOP/EJECT Button $\Rightarrow$ pg. 15

REAR VIEW



- ① Mains Power Cord $\Rightarrow$ pg. 4
- ② S-VIDEO OUT Connector $\Rightarrow$ pg. 5
- ③ AV1 OUT Switch $\Rightarrow$ pg. 4
- ④ AV1 IN/OUT Connector $\Rightarrow$ pg. 4, 38, 43 – 46
- ⑤ ANT. IN Connector $\Rightarrow$ pg. 4
- ⑥ AV2 IN/DECODER Connector $\Rightarrow$ pg. 38, 43 – 46
- ⑦ AUDIO OUT (L/R) Connectors $\Rightarrow$ pg. 47
- ⑧ Remote PAUSE Connector $\Rightarrow$ pg. 41
- ⑨ RF OUT Connector $\Rightarrow$ pg. 4

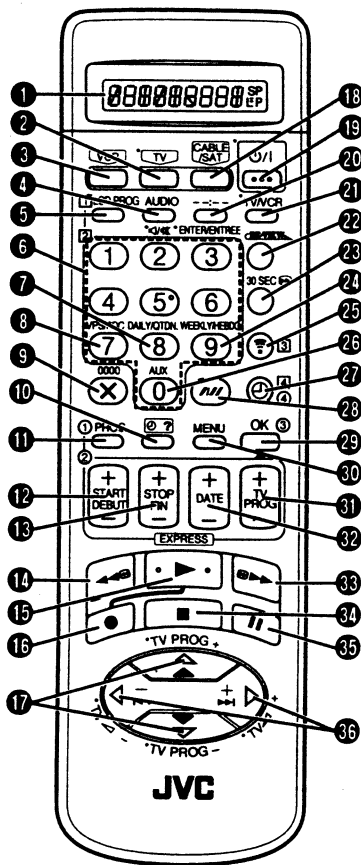
DISPLAY PANEL



- ① B.E.S.T. Picture System Display $\Rightarrow$ pg. 24
- ② Audio Level Indicator
- ③ Programme Time Indicators $\Rightarrow$ pg. 28
- ④ Symbolic Mode Indicators
- ⑤ "Timer" Indicator $\Rightarrow$ pg. 27, 29
- ⑥ S-VHS Indicator $\Rightarrow$ pg. 22
- ⑦ Channel/Clock Display $\Rightarrow$ pg. 9
- ⑧ Tape Speed Indicators $\Rightarrow$ pg. 20
- * EP is only for NTSC playback
- ⑨ Instant REVIEW Indicator $\Rightarrow$ pg. 19
- ⑩ Audio Mode Indicator $\Rightarrow$ pg. 19
- ⑪ Tape Remaining Time Indicator $\Rightarrow$ pg. 21
- ⑫ "Cassette Loaded" Mark
- ⑬ VPS/PDC Indicator $\Rightarrow$ pg. 27, 29
- ⑭ VCR Indicator $\Rightarrow$ pg. 21
- ⑮ Counter/Remain Display
- ⑯ Mode Display (L-1, L-2, F-1 or S-1)

PLAY: FF/REW VARIABLE SEARCH:		STILL: SLOW:	
		RECORD:	
		RECORD PAUSE:	
AUDIO DUBBING:			
AUDIO DUBBING PAUSE:			

REMOTE CONTROL



Buttons with a small dot on the left side of the name can also be used to operate your TV. (pg. 35)

How To Use

The remote control can operate most of your video recorder's functions, as well as basic functions of TV sets and satellite tuners of JVC and other brands. (pg. 35, 36)

- Point the remote control toward the sensor window.
- The maximum operating distance of the remote control is about 8 m.

- 1 LCD Panel pg. 26, 65
- 2 TV Button pg. 35, 65
- 3 VCR Button pg. 34, 65
- 4 AUDIO Button pg. 19
- 5 MUTE (TV Muting) Button pg. 35
- 6 LCD PROG Button pg. 26
- 7 NUMBER Keys pg. 20, 26
- 8 DAILY Button pg. 27, 29
- 9 VPS/PDC Button pg. 27, 29
- 10 X Button pg. 26, 30
- 11 0000 Button pg. 21
- 12 ? Button pg. 30
- 13 PROG Button pg. 26
- 14 START +/- Button pg. 28
- 15 STOP +/- Button pg. 28
- 16 Rewind [REW] Button pg. 15, 17
- 17 Play Button pg. 15
- 18 Record Button pg. 20
- 19 Δ▽ Button pg. 6
- 20 TV PROG +/- Button pg. 35
- 21 CABLE/SAT Button pg. 36, 65
- 22 STANDBY/ON ○/I Button pg. 6
- 23 --- Button pg. 21
- 24 TV/VCR Button pg. 21, 35
- 25 REVIEW Button pg. 19
- 26 30 SEC Button pg. 17
- 27 WEEKLY Button pg. 27, 29
- 28 ↑ Button pg. 26
- 29 AUX Button pg. 38
- 30 ⊖ Button pg. 27, 29
- 31 /// (Auto Tracking) Button pg. 17
- 32 SP/LP Button pg. 20
- 33 OK Button pg. 7
- 34 MENU Button pg. 10
- 35 TV PROG +/- Button pg. 20
- 36 DATE +/- Button pg. 28
- 37 Fast Forward [FF] Button pg. 15
- 38 Stop Button pg. 15, 20
- 39 Pause Button pg. 16
- 40 <|> Button pg. 16
- 41 TV Δ/-Button pg. 35

NOTES:

- When inserting the batteries, be sure to insert in the correct directions as indicated under the battery cover.
- If the remote control doesn't work properly, remove its batteries, wait a short time, replace the batteries and then try again.

Remote Control LCD

The remote control can operate not only the video recorder but also some of your TV and satellite tuner's functions. The LCD indicates which of these (VIDEO, TV or CABLE/SAT) the remote control can currently operate. When you first purchase the remote control, or after you have just replaced the batteries, VIDEO A (A code) is selected.

- 1 To operate your video recorder, first press the VCR button to set the remote control to the Video mode (pg. 34).
- 2 To operate your TV, first press the TV button to set the remote control to the TV mode (pg. 35).
- 3 To operate your satellite tuner, first press the CABLE/SAT button to set the remote control to the Satellite tuner mode (pg. 36).

VIDEO A

TV

CABLE SAT

NOTES:

Even if "TV" is displayed on the LCD, the following operations can be performed without switching the mode.

- Basic operations for the recorder
- After an operation is completed, "TV" reappears on the LCD.
- Express Timer Programming and ShowView Timer Programming operations
- To perform a TV operation again, switch to TV mode first.
- Accessing main menu
- To perform a TV operation again, switch to TV mode first.

GENERAL

Power requirement	: AC 220 – 240 V~, 50/60 Hz
Power consumption	
Power on	: 24 W
Power off	: 5.5 W
Temperature	
Operating	: 5°C to 40°C
Storage	: -20°C to 60°C
Operating position	: Horizontal only
Dimensions (WxHxD)	: 400 x 94 x 347 mm
Weight	: 3.9 kg
Format	: S-VHS/VHS PAL standard
Maximum recording time	
(SP)	: 240 min. with E-240 video cassette
(LP)	: 480 min. with E-240 video cassette

VIDEO/AUDIO

Signal system	: PAL-type colour signal and CCIR monochrome signal, 625 lines 50 fields
Recording system	: DA4 (Double Azimuth) head helical scan system
Signal-to-noise ratio	: 45 dB
Horizontal resolution	: 250 lines (VHS) 400 lines (S-VHS)
Frequency range	: 70 Hz to 10,000 Hz (Normal audio) 20 Hz to 20,000 Hz (Hi-Fi audio)
Input/Output	: 21-pin SCART connectors : IN/OUT x 1, IN/DECODER x 1 RCA connectors: VIDEO IN x 1, AUDIO IN x 1, AUDIO OUT x 1 S-Video connectors: IN x 1, OUT x 1

TUNER/TIMER

TV channel storage capacity	: 99 positions (+AUX position)
Tuning system	: Frequency synthesized tuner
Channel coverage	: VHF 47 – 89/104 – 300/ 302 – 470MHz UHF 470 – 862MHz
Aerial output	: UHF channels 22 – 69 (Adjustable)
Memory backup time	: Approx. 60 min.

ACCESSORIES

Provided accessories	: RF cable, Infrared remote control unit, "R6" battery x 2
----------------------	--

Specifications shown are for SP mode unless otherwise specified.

E. & O.E. Design and specifications subject to change without notice.

Auto Set Up – referring to the display panel

The Auto Set Up function sets the tuner channels, clock and Guide Program numbers automatically.

BEFORE YOU START PLEASE MAKE SURE THAT:

- The TV aerial cable is connected to the ANT.IN jack on the rear panel of the video recorder.
- The video recorder's mains power cord is connected to a mains outlet.
- The video recorder is turned off.
- Load batteries into the remote control.

- 1 Press $\square$ /I (recorder/remote).

SET 32

- 2 Press $\Delta \nabla$ (remote) to select the international telephone country code.

(Ex.) DEUTSCHLAND is selected.

SET 49

- If you have selected a country code other than 32 (BELGIUM) or 41 (SUISSE), go to step 3.
- If you have selected 36 (MAGYARORSZAG), 42 (CESKA REPUBLIKA), 48 (POLSKA) or EE (OTHER EASTERN EUROPE), press OK. Clock Set screen will appear. Set the clock manually (pg. 56 – 57), then go to step 3.

International Telephone Country Code

BELGIUM	: 32	NORGE	: 47
ČESKÁ REPUBLIKA	: 42	ÖSTERREICH	: 43
DANMARK	: 45	POLSKA	: 48
DEUTSCHLAND	: 49	PORTUGAL	: 351
ESPAÑA	: 34	SUISSE	: 41
GREECE	: 30	SUOMI	: 358
ITALIA	: 39	SVERIGE	: 46
MAGYARORSZAG	: 36	OTHER WESTERN EUROPE	: --
NEDERLAND	: 31	OTHER EASTERN EUROPE	: EE

- If you have selected 32 (BELGIUM) or 41 (SUISSE), press OK (remote) and select the language code by pressing $\Delta \nabla$ (remote), then go to step 3.

(Ex.) FRANCAIS is selected for BELGIUM

32-03

International Telephone
Country Code

Language Code

Language Code

ENGLISH	: 01	NEDERLANDS	: 06
DEUTSCH	: 02	SVENSKA	: 07
FRANCAIS	: 03	NORSK	: 08
ITALIANO	: 04	SUOMI	: 09
CASTELLANO	: 05	DANSK	: 10

- 3 Press OK (remote). "Auto" appears on the display panel.

Auto

- 4 Press OK (remote) to start Auto Set Up. Do NOT press any button on the video recorder or remote control during "Auto" is blinking.

Auto

- If "--" appears on the display panel, see page 9 of the instructions.

* Once you have performed Auto Set Up, even if the recorder's memory backup has expired, the recorder will not perform Auto Set Up again. Perform tuner setting (pg. 48) and/or clock setting (pg. 56) as required.

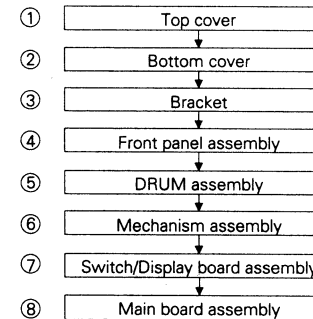
FOR MORE INFORMATION
SEE INSTRUCTIONS/P6

JVC
VICTOR COMPANY OF JAPAN, LIMITED

SECTION 1 DISASSEMBLY

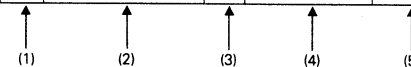
1.1 DISASSEMBLY FLOW CHART

This flowchart lists the disassembling steps for the cabinet parts and P.C. boards in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in reverse order. Bend, route and dress the flat cables as they were originally laid.



1.2 HOW TO READ THE DISASSEMBLY AND ASSEMBLY

STEP /LOC NO.	PART NAME	FIG. NO.	POINT	NOTE
①	TOP COVER	D1	4(S1), (S2)	
②	BOTTOM COVER	D2	(S3), 7(L1)	
③	BRACKET	D3	2(S4)	
④	FRONT PANEL ASSEMBLY	D4	7(L2), (S5), CN3012(WR1), CN7192(WR2), JOG SHUTTLE, JACK BOARD ASSY	<NOTE 1> <NOTE 2>



- (1) Order of steps in Procedure
When reassembling, perform the step(s) in the reverse order. These numbers are also used as the identification (location) NO. of parts Figures.
- (2) Part name to be removed or installed.
- (3) Fig.No. showing procedure or part location
- (4) Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped or unsoldered. P = Spring, W = Washer, S = Screw, L = Locking tab, CNxx(WRxx) = Remove the wire (WRxx) from the connector (CNxx).

NOTE: The bracketed () WR of the connector symbol are assigned nos. in priority order and do not correspond to those on the spare parts list.

- (5) Adjustment information for installation

1.3 DISASSEMBLY/ASSEMBLY METHOD

STEP /LOC NO.	PART NAME	FIG. NO.	POINT	NOTE
①	TOP COVER	D1	4(S1), (S2)	
②	BOTTOM COVER	D2	(S3), 7(L1)	
③	BRACKET	D3	2(S4)	
④	FRONT PANEL ASSEMBLY	D4	7(L2), (S5), CN3012(WR1), CN7192(WR2), JOG SHUTTLE, JACK BOARD ASSY	<NOTE 1> <NOTE 2>
⑤	DRUM ASSEMBLY	D5	3(S6), 4(L3), (L4), (P1), CN1(WR3), CN1(WR4), INERTIA PLATE, ROLLER ARM ASSY	<NOTE 2>
⑥	MECHANISM ASSEMBLY	D6	2(S7), (S8), (S9), 2(L5), CN1(WR6)	<NOTE 2> <NOTE 3>
⑦	SWITCH/DISPLAY BOARD ASSEMBLY	D7	7(L6), (L7), CN7001(WR6), CN7191(WR7), REC SAFETY BOARD ASSY	<NOTE 2> <NOTE 4>
⑧	MAIN BOARD ASSEMBLY	D8	2(S10), (L8)	

<NOTE1>

- Before attaching the Front panel assembly, ensure that the door opener ③ is in the lower position.

<NOTE2>

- When inserting the flat wire into the connector, be careful not to make a mistake in the positioning of its electrodes.

<NOTE3>

- When it is required to remove the screws (S7) retaining the Mechanism assembly, please refer to the "Procedures for Lowering the Cassette holder assembly"(See on pages 1-3).
- When removing the Mechanism assembly only, unhook the two spacers connecting it with the Main board assembly with pliers from the back side of the Main board assembly first, and then remove the Mechanism assembly.
- When attaching the Mechanism assembly, be careful not to damage the sensors and switches on the Main board assembly. (D3001: LED, Q3002: Start sensor, Q3003: End sensor S3002: S tape detect switch).

<NOTE4>

- The REC safety board assembly is attached to the Switch/Display board assembly. It is therefore necessary to remove the REC safety board assembly before removing the Switch/Display board assembly.

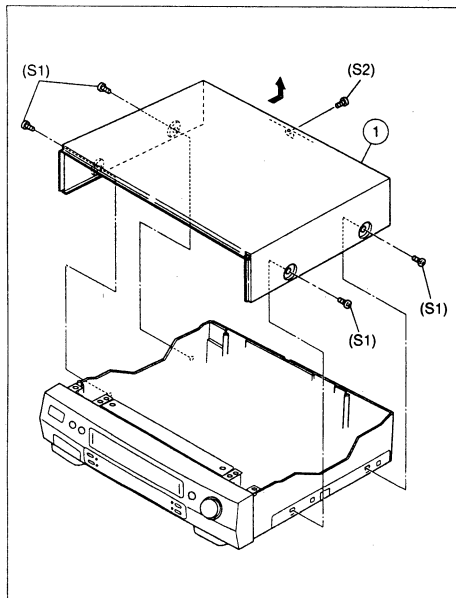


Fig. D1

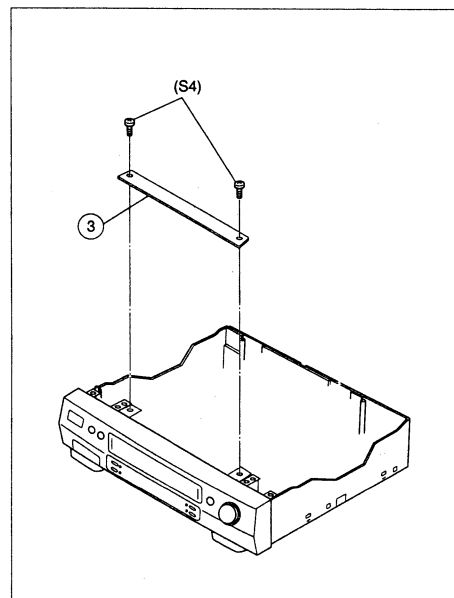


Fig. D3

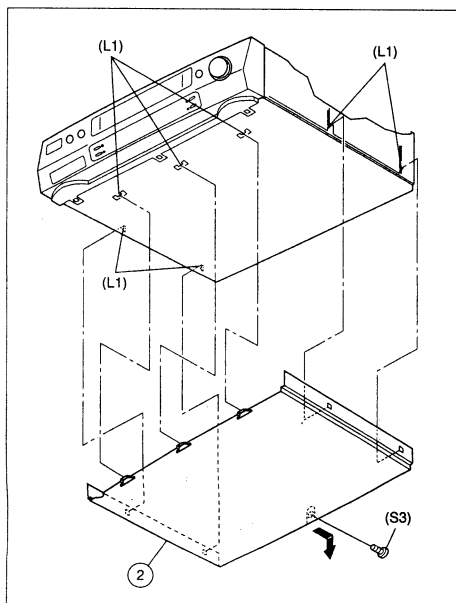


Fig. D2

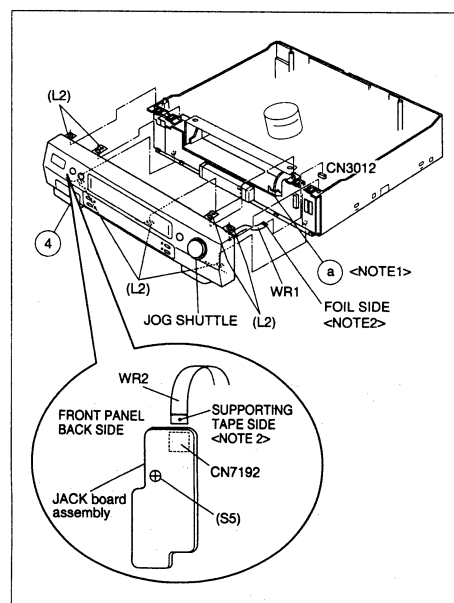


Fig. D4

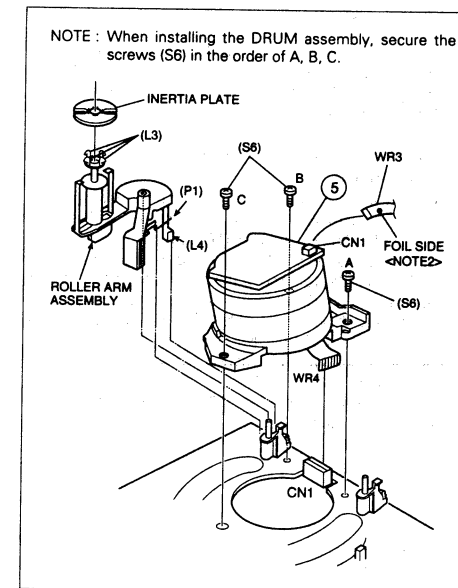


Fig. D5

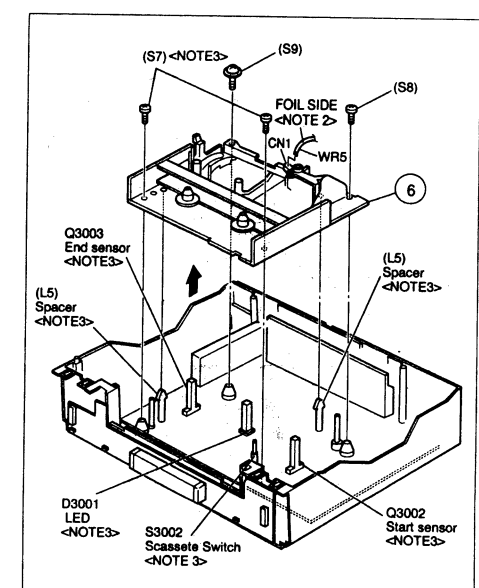


Fig. D6

Procedures for Lowering the Cassette holder assembly

As the mechanism of this unit is integrated with the Housing assembly, the holder must be lowered and the two screws unscrewed when removing the Mechanism assembly.

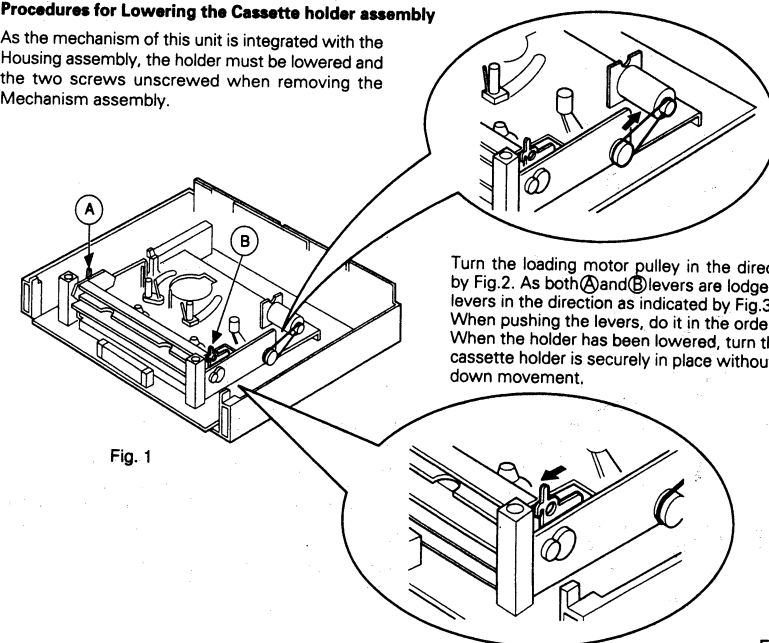


Fig. 1

Fig. 2

Turn the loading motor pulley in the direction as indicated by Fig.2. As both (A) and (B) levers are lodged twice, push the levers in the direction as indicated by Fig.3 to release them. When pushing the levers, do it in the order of (A), (B), (A). When the holder has been lowered, turn the pulley until the cassette holder is securely in place without allowing any up/down movement.

Fig. 3

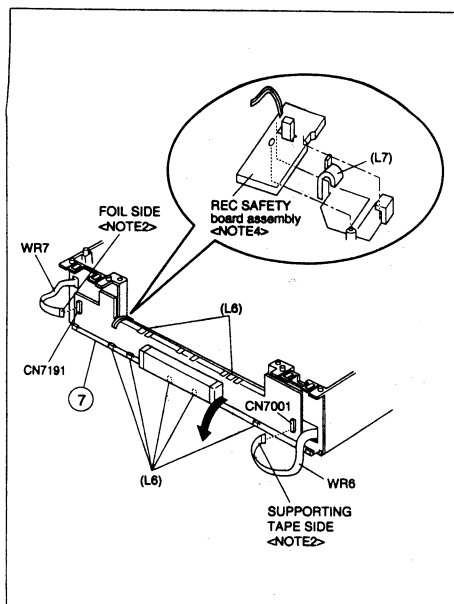


Fig. D7

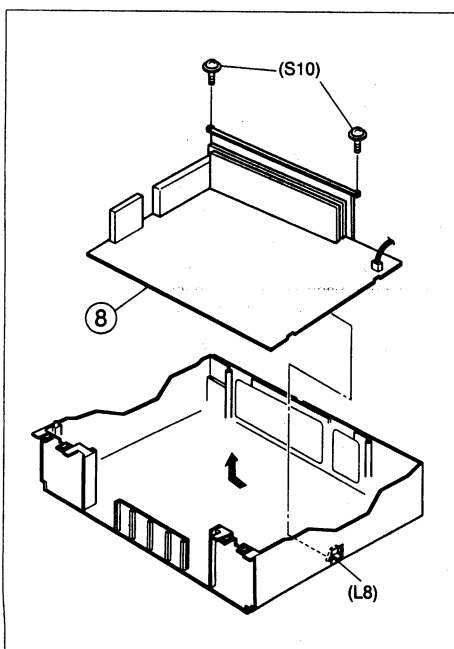


Fig. D8

1.4 SERVICE POSITION

In order to facilitate diagnosis and the repair of the Mechanism assembly, this unit is constructed so as to allow the Mechanism and Main board assemblies to be removed together from the Chassis assembly.

1.4.1 How to take out the Mechanism and Main board assemblies

- (1) Remove the Top cover, Bracket, Front panel assembly and JACK board assembly. (Refer to page 1-2 of 1.3 DISASSEMBLY/ASSEMBLY METHOD.)
- (2) Lower the cassette holder, and make the preparations required in order to remove the screws from the Mechanism assembly. (Refer to the "Procedures for Lowering the Cassette holder assembly" on pages 1-3 of 1.3 DISASSEMBLY/ASSEMBLY METHOD.)
- (3) Take out 2 screws (A), 1 screw (B) and 1 screw (C) as shown in Fig. 1-4-1.
- (4) Remove the flat wires from CN3011 and CN7504 on the Main board assembly.

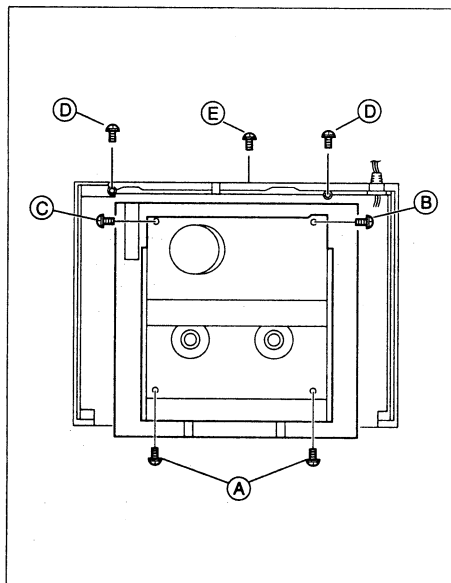


Fig. 1-4-1

- (5) Take out 2 screws (D) and 1 screw (E) as shown in Fig. 1-4-1.
- (6) Remove the hook (F) while holding the edge of the Main board assembly, and remove the Main board and Mechanism assemblies together. At this stage be careful of the power cord and prongs of the jacks on the back side. (Refer to Fig. 1-4-2.)
- (7) Remove the Switch/Display board assembly and REC safety board assembly. (Refer to page 1-4 of 1.3 DISASSEMBLY/ASSEMBLY METHOD. Take care not to pull the flat wires (Fig. D7) from CN7001 and CN7191.)

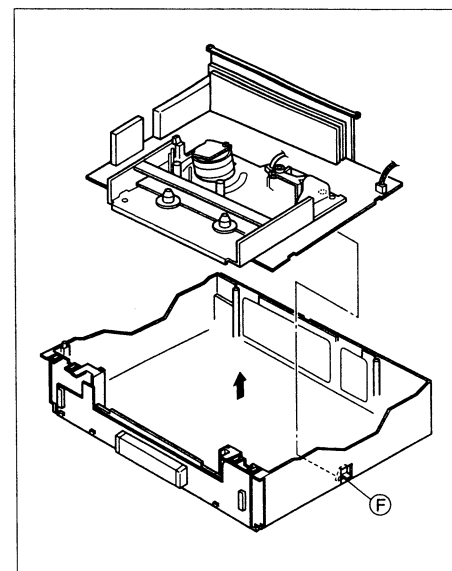


Fig. 1-4-2

- (8) Place the Switch/Display board assembly, REC safety board assembly and Jack board assembly on the front side of the Mechanism and Main board assemblies which was removed at the step (6), then connect the flat wires into CN3011 and CN7504 of the Main board assembly and CN7192 of the Jack board assembly. (Refer to Fig. 1-4-3.)

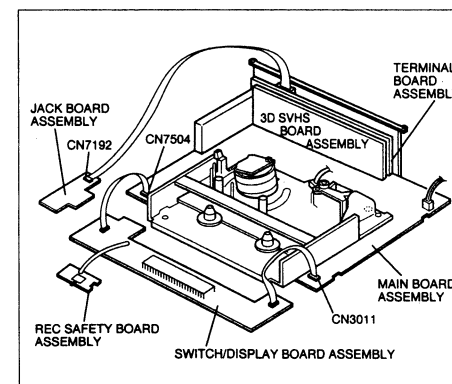


Fig. 1-4-3

- (9) Connect the power cord to the wall socket, and lift the cassette holder. (Before turning on the power make sure that there is nothing which may produce a short circuit, such as faulty soldering.)

Note: When carrying out diagnosis and repair of the Main board assembly in the service position, be sure to ground both the Main board and the Mechanism assemblies.

If they are improperly grounded, there may be noise on the playback picture or the FDP counter display may move even when the mechanism is kept in an inoperative status.

1.4.2 Precautions for cassette loading in the "SERVICE POSITION"

The REC safety board assembly detects cassette loading as well as cassette tabs. Therefore, after the assembly has been removed in the "SERVICE POSITION", it is required to set the switch manually on the REC safety board assembly when a cassette is loaded.

1.4.3 Cassette loading and ejection methods in the "SERVICE POSITION" (See Fig. 1-4-3).

- (1) Insert a cassette halfway in the Cassette holder assembly.
- (2) Set the switch on the REC safety board assembly to ON (by pressing the switch).
- (3) As soon as the cassette starts to be loaded, set the switch on the REC safety board assembly to OFF (by releasing the switch).
- (4) Now the desired operation (recording, playback, fast forward, rewind, etc.) is possible in this status (the status shown in Fig. 1-4-3).

NOTES:

- When performing diagnostics of the tape playback or the recording condition in the "SERVICE POSITION", enter the desired mode before turning the set upside down, and do not change the mode when performing diagnostics while the set is placed upside down. If you want to switch the mode, turn the set to the normal position (the status shown in Fig. 1-4-3).

- In the "SERVICE POSITION", the cassette tabs cannot be detected and recording becomes possible even with a cassette with broken tabs such as the alignment tape. Be very careful not to erase important tapes.

- (5) The switch on the REC safety board assembly does not have to be operated when ejecting a tape. But be sure to turn the set to the normal position before ejecting the tape.

1.5 MECHANISM SERVICE MODE

This model has a unique function to enter the mechanism into every operation mode without loading of any cassette tape. This function is called the "MECHANISM SERVICE MODE".

1.5.1 How to set the "MECHANISM SERVICE MODE"

- (1) Disconnect VCR from AC.
- (2) Connect TPGND and TP7001 (TEST) on the Switch/Display board assembly with a jump wire.
- (3) Connect VCR to AC.
- (4) Press the POWER button.
- (5) With lock levers ⒶⒷ on the left and right of the Cassette holder assembly pulled toward the front, slide the holder in the same direction as the cassette insertion direction. (For the positions of lock levers ⒶⒷ, refer to the "Procedures for Lowering the Cassette holder assembly" on pages 1-3 of 1.3 DISASSEMBLY/ASSEMBLY METHOD.)
- (6) The cassette holder lowers and, when the loading has completed, the mechanism enters the desired mode.

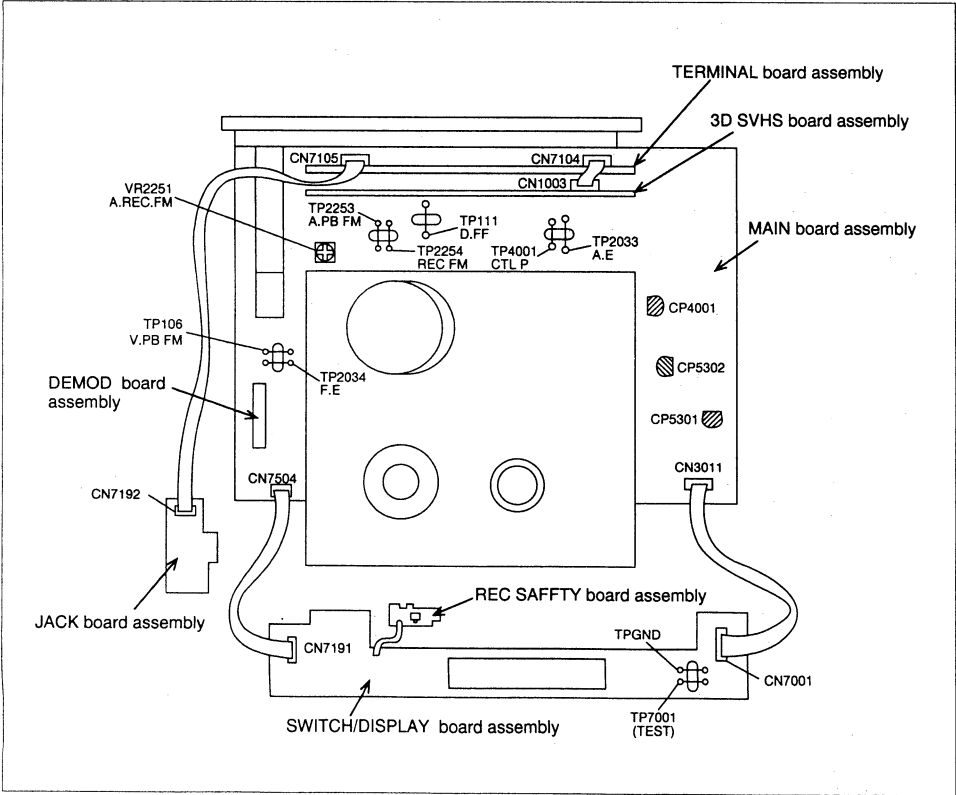


Fig. 1-5-1

1.6 EMERGENCY DISPLAY FUNCTION

This product has the function to store the last two previous emergency faults which can be displayed in the FDP when servicing.

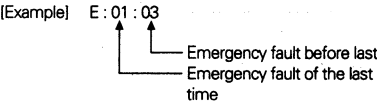
1.6.3 How to clear emergency record

Press the COUNTER RESET button on the remote controller in the emergency record display mode, and the record of the emergency fault(s) is cleared.

1.6.1 How to display record of an emergency faults

Note: Put the unit into A mode by using the VCR remote controller. (When it is in B mode, the preset remote control codes are not accepted.)

- (1) Press the "N" button of the presetting unit and the two previous emergency faults are shown in the FDP.
- (2) Press the "N" button of the presetting unit again to return to the normal mode.



[Example] E: — : — : — ← No record of emergency

1.6.2 Detail of emergency faults

EMG DATA	Symptom	Detect mode	Resulting mode
E : 01	Loading motor rotates for more than 8 Sec without shift to next mode.	Loading	POWER OFF
E : 02	Loading motor rotates for more than 8 Sec without shift to next mode.	Unloading	POWER OFF
E : 03	TU REEL FG input is absent. (for more than 4 Sec)	REC/PLAY/FF/REW SEARCH FF/SEARCH REW	POWER OFF
E : 04	DRUM FF input is absent. (for more than 3 Sec)	REC/PLAY SEARCH FF/SEARCH REW	POWER OFF
E : 06	CAPSTAN FG input is absent. (for more than 4 Sec)	REC/PLAY/FF/REW SEARCH FF/SEARCH REW	POWER OFF
E : 07	No SWD5V/12V	POWER ON	POWER OFF

Table 1-6-1 EMERGENCY FAULTS

1.7 SYSCON CIRCUIT

1.7.1 Syscon CPU pin function (IC3001) 1/2

PIN NO.	LABEL	IN/OUT	FUNCTION
1	CTL(+)	IN/OUT	CTL(+) SIGNAL
2	SVSS	-	GND
3	CTL(-)	IN/OUT	CTL(-) SIGNAL
4	CTLBIAS	-	CTL BIAS VOLTAGE
5	CTLFb	IN	CTL PULSE FEEDBACK
6	CTLAMP OUT	OUT	CTL PULSE OUTPUT
7	CTLSMTIN	IN	CTL PULSE INPUT
8	CFG	IN	CAPSTAN FG PULSE INPUT
9	SVCC	-	SYSTEM POWER
10	AVCC	-	SYSTEM POWER FOR ANALOG CIRCUIT
11	NORM/MESEC/S	IN	SVHS MODE:H
12	SECAM DET/KILLER OUT	-	NC
13	VIDEO ENV	IN	AUTO TRACKING DETECT/INPUT THE AVERAGE OF PLAYBACK VIDEO SIGNAL
14	START SENSOR	IN	START SENSOR
15	END SENSOR	IN	END SENSOR
16	IND(L)	IN	AUDIO INPUT (LCH) FOR THE FDP AUDIO INDICATOR
17	DD ABS	-	NC
18	SCR ID	IN	SCRAMBLE CONTROL INPUT (SCRAMBLE:H)
19	IND(R)	IN	AUDIO INPUT (RCH) FOR THE FDP AUDIO INDICATOR
20	BS ANT/AFc	IN	TUNING CLOCK
21	LED/RF AGC	-	NC
22	A.ENV/ND(L)	IN	AUDIO PB FM ENV.INPUT/NON HiFi MODE:L
23	AVSS	-	GND FOR ANALOG CIRCUIT
24	CTL GAIN	OUT	CONTROL AMP OUT FREQUENCY RESPONSE SWITCHING
25	LSA	IN	MECHANISM MODE DETECT(A)
26	LSB	IN	MECHANISM MODE DETECT(B)
27	LSC	IN	MECHANISM MODE DETECT(C)
28	CAP REV(L)	OUT	CAPSTAN MOTOR REVERSE CONTROL (FWD:H/REV:L)
29	RC	IN	REMOTE CONTROL DATA INPUT
30	R.PAUSE/COMPU IN	IN	REMOTE PAUSE CONTROL
31	P50 IN	IN	CONTROL SIGNAL FOR TV LINK
32	LMC3	OUT	LOADING MOTOR DRIVE(3)
33	P50 OUT/COMPU OUT	OUT	CONTROL SIGNAL FOR TV LINK
34	EE(L)	OUT	EE/PB CONTROL (EE MODE:L)
35	LMC1	OUT	LOADING MOTOR DRIVE(1)
36	LMC2	OUT	LOADING MOTOR DRIVE(2)
37	P.CTL(H)	OUT	CONTROL SIGNAL FOR SWITCHING POWER SUPPLY
38	SB G(PWM)	OUT	VOLTAGE CONTROL SIGNAL FOR VIDEO FREQUENCY RESPONSE
39	STB/TEST	OUT	STROBE SIGNAL (FOR FDP DRIVER)
40	POWER DET	IN	DETECTION SIGNAL FOR POWER DOWN OF AC POWER SUPPLY
41	REC SAFETY	IN	REC SAFETY SWITCH DETECT (SW ON:L)
42	PROTECT	IN	DETECTION SIGNAL FOR SW POWER SUPPLY
43	VSS	-	GND
44	TRICK(H)	OUT	SPECIAL PLAYBACK:H
45	VCC	-	SYSTEM POWER
46	N.REC(H)	OUT	NORMAL AUDIO REC MODE CONTROL (REC:H)
47	3.58NTSC	-	NC
48	SUB CLK	-	NC
49	I2C DATA	IN/OUT	SERIAL DATA TRANSFER OUTPUT FOR THE ON-SCREEN IC
50	I2C CLK	OUT	SERIAL DATA TRANSFER CLOCK FOR THE ON-SCREEN IC
51	S.DATA TOSYS	IN	SERIAL DATA TRANSFER OUTPUT FROM THE ON-SCREEN IC TO THE FDP DRIVER
52	S.DATA FRSYS	OUT	SERIAL DATA TRANSFER OUTPUT FROM THE FDP DRIVER TO THE ON-SCREEN IC
53	S.CLK	OUT	SERIAL DATA TRANSMISSION CLOCK FROM THE FDP DRIVER TO THE ON-SCREEN IC
54	SP FG	IN	DETECTION SIGNAL FOR SUPPLY REEL ROTATION/TAPE REMAIN
55	TU FG	IN	DETECTION SIGNAL FOR TAKE-UP REEL ROTATION/TAPE REMAIN
56	LOCK(L)	IN	TUNING PLL LOCK DETECT: L

Table 1-7-1 SYSCON CPU pin function(1/2)

1.7.2 Syscon CPU pin function (IC3001) 2/2

PIN NO.	LABEL	IN/OUT	FUNCTION
57	TU CE	OUT	CHIP ENABLE OF THE TUNER UNIT
58	JUST CLK/CCIR(H)	OUT	NC/EXCEPT FOR NTSC:L
59	SW1	OUT	TUNER "L" SYSTEM MODE:H
60	TU CLK	OUT	CLOCK FOR DATA TRANSFER TO THE TUNER UNIT
61	TU DATA	OUT	TUNING DATA
62	FWE	-	NC
63	NMI(L)	-	NC
64	X2	-	TIMER CLOCK (32.768KHz)
65	X1	-	TIMER CLOCK (32.768KHz)
66	RES(L)	-	RESET TERMINAL (RESETON:L)
67	OSC1(IN)	-	MAIN SYSTEM CLOCK(10MHz)
68	VSS	-	GND
69	OSC2(OUT)	-	MAIN SYSTEM CLOCK(10MHz)
70	VCC	-	SYSTEM POWER
71	MODE	-	NC
72	TU A MUTE(H)	OUT	TUNER AUDIO MUTE CONTROL (MUTE:H)
73	TU V MUTE(H)	OUT	TUNER VIDEO CONTROL (MUTE:H)
74	A.MUTE(H)	OUT	AUDIO MUTE CONTROL (MUTE:H)
75	I2C CLK2	OUT	SERIAL DATA TRANSFER CLOCK FOR MEMORY IC
76	I2C DATA2	IN/OUT	SERIAL DATA TRANSFER OUTPUT FOR MEMORY IC
77	SW2	OUT	TUNER SYSTEM "L" MODE:L
78	FULL E ON(H)	OUT	FULL ERASE HEAD ON
79	CNR ON(H)	-	NC
80	V.P.CTL	OUT	V.PULSE CONTROL, V COMPENSATION DURING SPECIAL PLAYBACK
81	ET REC(H)	-	NC
82	VCC	-	SYSTEM POWER
83	SLOW	OUT	MEMORY TIMING CONTROL IN THE SLOW MODE
84	VSS	-	GND
85	SP SHORT(H)	OUT	MODE SELECT
86	LP SHORT(H)	OUT	MODE SELECT
87	SP(H)/S PB(H)	-	NC
88	A.REC ST(H)	OUT	HIFI AUDIO SOUND RECORDING START
89	SECAM(H)	-	NC
90	HEAD SEL	-	NC
91	OSD CS	OUT	CHIP SELECT FOR THE ON-SCREEN IC
92	SYNC DET(H)	IN	DETECTION OF VIDEO SYNC SIGNAL (DETECTED:H)
93	P.MUTE(L)	OUT	PICTURE MUTE CONTROL (MUTE:L)
94	JSB/STLB	IN	INPUT FOR THE JOG SHUTTLE
95	SHTL(L)/JOGA	IN	INPUT FOR THE JOG SHUTTLE
96	THROUGH(H)	-	NC
97	JSA/STLA	IN	INPUT FOR THE JOG SHUTTLE
98	C.SYNC	IN	COMPOSITE SYNC
99	A.FF	OUT	AUDIO FF OUTPUT
100	V.FF	OUT	ROTATION DETECTION SIGNAL FOR DRUM MOTOR/TIMING CONTROL SIGNAL FOR REC
101	CAPPWM	OUT	CAPSTAN MOTOR CONTROL
102	DRUMPWM	OUT	DRUM MOTOR CONTROL
103	SUB RESET/V.UP(H)	OUT	NC/HIGH SPEED FF/REW TURBO SEARCH:H
104	S.CASS(H)	IN	DETECTION SIGNAL FOR SVHS CASSETTE (SVHS:H)
105	PERI 1S	IN	INPUT FOR THE TERMINAL SLIDE SW POSI IN THE SAT MODE
106	LOCK(L)/P.SAVE(L)	OUT	NC/POWER SAVE:L
107	DPG	IN	DRUM PICKUP PULSE INPUT (SWITCHING PULSE)
108	DFG	IN	DRUM FG PULSE INPUT
109	VCC	-	SYSTEM POWER
110	V.PULSE	OUT	V.PULSE ADDITION TIMING CONTROL
111	VSS	-	GND
112	CTLREF	-	CTL REFERENCE VOLTAGE

Table 1-7-2 SYSCON CPU pin function(2/2)

SECTION 2 MECHANISM ADJUSTMENT

2.1 BEFORE STARTING REPAIR AND ADJUSTMENT

2.1.1 Precautions

- (1) Unplug the power cable of the main unit before using your soldering iron.
- (2) Take care not to cause any damage to the conductor wires when plugging and unplugging the connectors.
- (3) Do not randomly handle the parts without identifying where the trouble is.
- (4) Exercise enough care not to damage the lugs, etc. during the repair work.
- (5) When installing the front panel assembly, be sure to hook the lug on the back side of the cassette door to the door opener of the cassette holder. If this operation is neglected it will not be possible to remove the cassette when ejecting because the housing door cannot be opened.

2.1.2 Checking for Proper Mechanical Operations

Enter the mechanism service mode when you want to operate the mechanism when no cassette is loaded. (See 1.5 MECHANISM SERVICE MODE.)

2.1.3 Manually Removing the Cassette Tape

1. In case of electrical failures

If you cannot remove the cassette tape which is loaded because of any electrical failure, manually remove it by taking the following steps.

- (1) Unplug the power cable and remove the top cover, bracket and front panel assembly. (See 1.3 DISASSEMBLY/ASSEMBLY METHOD.)
- (2) Unload the cassette by manually turning the loading motor of the mechanism assembly toward the front. In doing so, hold the tape by the hand to keep the slack away from any grease. (See Fig.2-1-1.)
- (3) Bring the pole base assembly (supply or take-up side) to a pause when it reaches the position where it is hidden behind the cassette tape.
- (4) Move the top guide toward the drum while holding down the lug **A** of the bracket retaining the top guide. Likewise hold part **B** down and remove the top guide. Section **C** of the top guide is then brought under the cassette lid. Then remove the top guide by pressing the whole cassette tape down. (See Fig.2-1-2.)
- (5) Remove the cassette tape by holding both the slackened tape and the cassette lid.
- (6) Take up the slack of the tape into the cassette. This completes removal of the cassette tape.

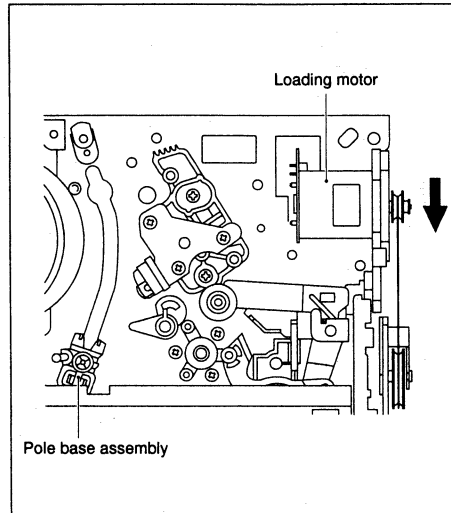


Fig. 2-1-1

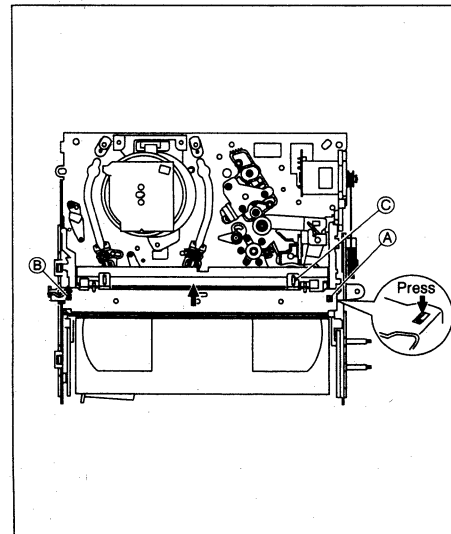


Fig. 2-1-2

2. In case of mechanical failure

If you cannot remove the cassette tape which is loaded because of any mechanical failure, manually remove it by taking the following steps.

- (1) Unplug the power cable and remove the top cover, front panel assembly and others so that the mechanism assembly is visible. (See 1.3 DISASSEMBLY/ASSEMBLY METHOD.)
- (2) While keeping the tension arm assembly of the mechanism assembly free from tension, pull the tape on the pole base assembly (supply or take-up side) out of the guide roller. (See Fig.2-1-3.)

- (3) Take the spring of the pinch roller arm assembly off the hook of the press lever assembly, and detach it from the tape. (See Fig.2-1-4.)
- (4) In the same way as in the electrical failure instructions in 2.1.3 (4), remove the top guide.
- (5) Raise the cassette tape cover. By keeping it in that position, draw out the cassette tape case from the cassette holder and take out the tape.
- (6) By hanging the pinch roller arm assembly spring back on the hook, take up the slack of the tape into the cassette.

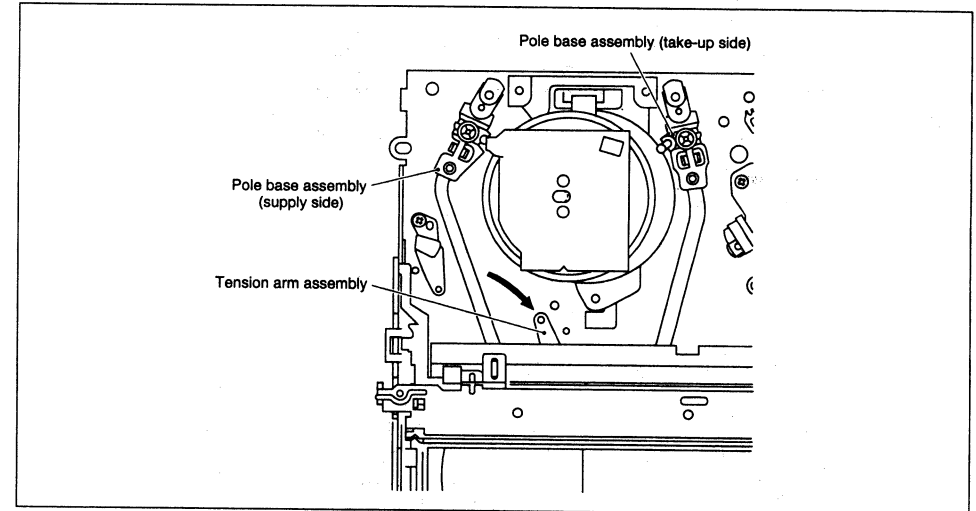


Fig. 2-1-3

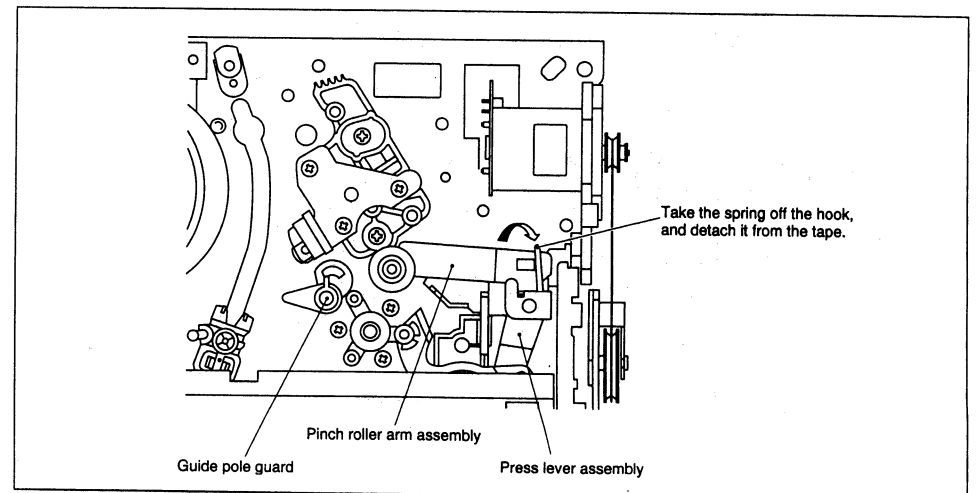


Fig. 2-1-4

2.1.4 Jigs and Tools Required for Adjustment

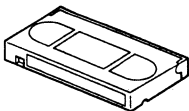
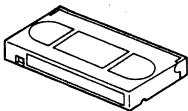
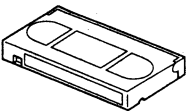
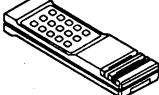
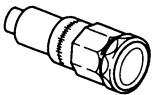
Alignment tape (SP) MHPE	Alignment tape (LP) MHPE-L	Back tension cassette gauge PUJ48076-2	A/C head position bit PTU94010
			
Roller driver PTU94002	Presetting unit PTU94008	Torque gauge PUJ48075-2	
			

Table 2-1-1 Jigs and tools required for adjustment

2.1.5 Maintenance and Inspection

1. Location of major mechanical parts

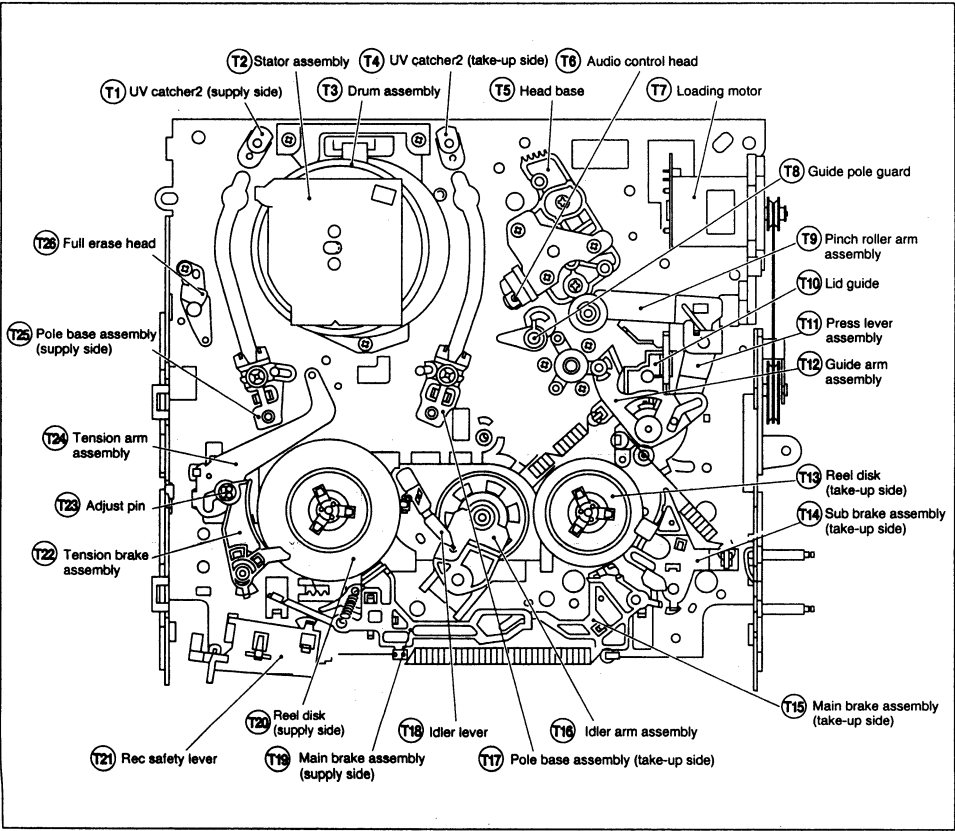


Fig. 2-1-5 Mechanism assembly top side

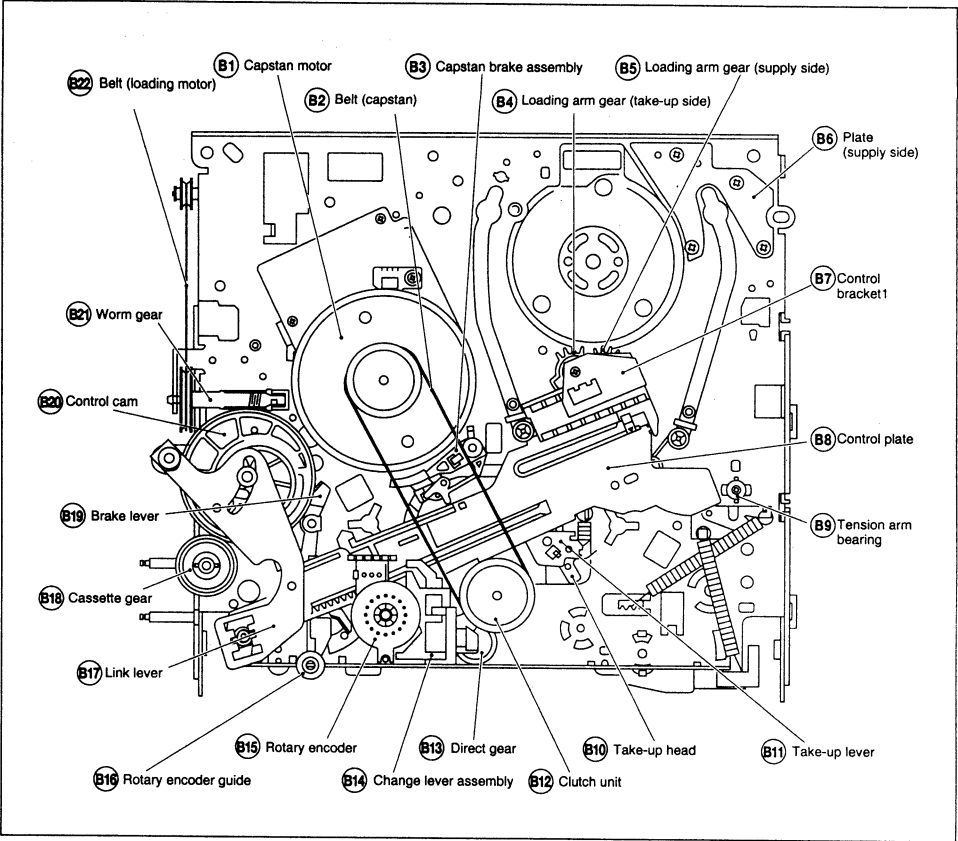


Fig. 2-1-6 Mechanism assembly bottom side

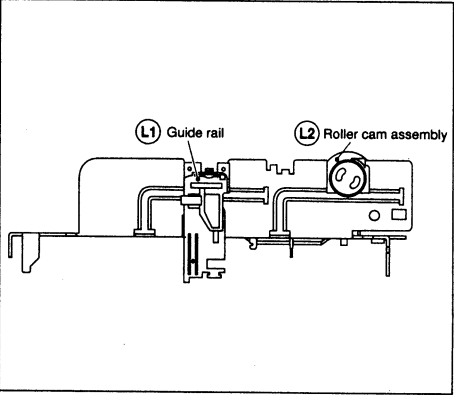


Fig. 2-1-7 Mechanism assembly left side

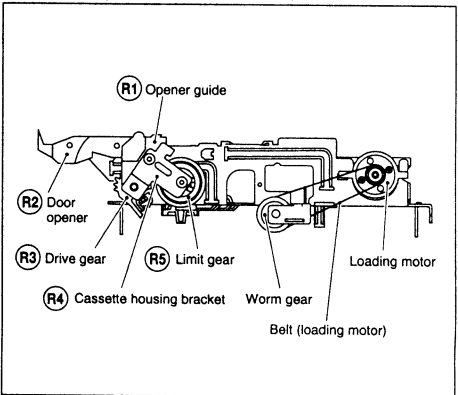


Fig. 2-1-8 Mechanism assembly right side

Note: This table shows the order in which parts are removed for replacement. To replace parts, remove them in the order of 1 to 18 as shown in the table. To install them, reverse the removal sequence. The circled numbers (symbols and numbers) preceding the individual part names represent the numbers in the "Location of major mechanical parts" table. Also, the "T", "B", and "T/B" on the right of each part name shows that the particular part is removed from the front, from the back, and from both sides of the mechanism, respectively.

Symbols and numbers	Removal parts	Front (T) Back (B) of mechanism	Number of removal steps															
			(L)	(U)	(R)	(B)	(T)	(B)	(T)	(B)	(T)	(B)	(T)	(B)	(T)	(B)	(T)	(B)
(L)	2.2.3 Guide rail	T	1															
(L)	2.2.3 Roller cam assembly	T	1															
(R)	2.2.3 Cassette housing bracket	T	1															
(R)	2.2.3 Opener guide	T	2		1													
(R)	2.2.3 Door opener	T	3		1	2												
-	2.2.3 Relay gear	T	3		1	2												
(R)	2.2.3 Limit gear	T	3		1	2												
-	2.2.3 Cassette holder assembly	T	6	1	2	3	4	5										
(R)	2.2.3 Drive gear	T	4		1	2	3											
-	2.2.3 Drive arm	T	8	1	2	3	4	5	6	7								
(T)	2.2.4 Pinch roller arm assembly	T	1															
(T)	2.2.5 Guide arm assembly	T	1															
(T)	2.2.5 Press lever assembly	T	3						1	2								
(T)	2.2.6 Audio control head	T	1															
(T)	2.2.7 Loading motor	T	1															
(B)	2.2.8 Capstan motor	T/B	1															
(T/B)	2.2.9 UV catcher2	T	1															
(T)	2.2.9 Pole base assembly (take-up side)	T/B	2															
(T)	2.2.9 Pole base assembly (supply side)	T/B	2															
(T)	2.2.10 Rotary encoder	B	1															
(T)	2.2.11 Clutch unit	B	1															
(T)	2.2.12 Change lever assembly	B	3								1	2						
(T)	2.2.12 Direct gear	B	4								1	2	3					
-	2.2.12 Clutch gear1	B	5								1	2	3	4				
(T)	2.2.13 Link lever	B	1															
(T)	2.2.14 Cassette gear	B	2													1		
(T)	2.2.14 Control cam	B	2													1		
(T)	2.2.14 Worm gear	B	1															
(T)	- Lid guide	T/B	5								1	2	3				4	
(T)	2.2.15 Control bracket1	B	1															
(T)	2.2.15 Control plate	B	6															
(T)	2.2.16 Loading arm gear (supply side)	B	7									1	2	3		4	5	6
(T)	2.2.16 Loading arm gear (take-up side)	B	8									1	2	3		4	5	6
-	2.2.16 Loading arm gear shaft	B	9									1	2	3		4	5	6
(T)	2.2.17 Take-up lever	T/B	7									1	2	3		4	5	6
(T)	2.2.17 Take-up head	T/B	8									1	2	3		4	5	6
-	2.2.17 Control plate guide	T/B	8									1	2	3		4	5	6
(T)	2.2.18 Capstan brake assembly	T/B	7									1	2	3		4	5	6
(T)	2.2.19 Sub brake assembly (take-up side)	T/B	15	1	2	3	4	5	6	7	8							
(T)	2.2.20 Main brake assembly (take-up side)	T/B	16	1	2	3	4	5	6	7	8							
(T)	2.2.20 Main brake assembly (supply side)	T/B	9	1	2	3	4	5	6	7	8							
(T)	2.2.20 Reel disk (take-up side)	T/B	16	1	2	3	4	5	6	7	8							
(T)	2.2.21 Tension brake assembly	T/B	9	1	2	3	4	5	6	7	8							
(T)	2.2.21 Reel disk (supply side)	T/B	10	1	2	3	4	5	6	7	8							9
(T)	2.2.21 Tension arm assembly	T/B	10	1	2	3	4	5	6	7	8							9
(T)	2.2.21 Tension arm bearing	T/B	10	1	2	3	4	5	6	7	8							9
(T)	2.2.22 Idler lever	T/B	17	1	2	3	4	5	6	7	8							15
(T)	2.2.22 Idler arm assembly	T/B	18	1	2	3	4	5	6	7	8							15
(T)	- Brake lever	T/B	18	1	2	3	4	5	6	7	8							15
(T)	- Rotary encoder guide	T/B	19	1	2	3	4	5	6	7	8							15

2. Cleaning

Regular cleaning of the transport system parts is desirable but practically impossible. So make it a rule to carry out cleaning of the tape transport system whenever the machine is serviced.

When the video head, tape guide and/or brush get soiled, the playback picture may appear inferior or at worst disappear, resulting in possible tape damage.

- (1) When cleaning the upper drum (especially the video head), soak a piece of closely woven cloth or Kimu-wipe with alcohol and while holding the cloth onto the upper drum by the fingers, turn the upper drum counterclockwise.

Note: Absolutely avoid sweeping the upper drum vertically as this will cause damage to the video head.

- (2) To clean the parts of the tape transport system other than the upper drum, use a piece of closely woven cloth or a cotton swab soaked with alcohol.
- (3) After cleaning, make sure that the cleaned parts are completely dry before using the video tape.

3. Lubrication

With no need for periodical lubrication, you have only to lubricate new parts after replacement. If any oil or grease on contact parts is soiled, wipe it off and newly lubricate the parts.

- (1) See the mechanism assembly and disassembly diagrams (M4) for the lubricating or greasing spots. See Table 2-1-2 for the types of oil or grease to be used.

Type	Name	Serial No.	Symbols on the disassembly diagrams
Grease	Maltemp SH-P	KYODO-SH-P	AA
Oil	Cosmohydro HV56	COSMO-HV56	BB

Table 2-1-2 Grease and oil used for the unit

4. Suggested servicing schedule for main components

The following table indicates the suggested period for such service measures as cleaning, lubrication and replacement. In practice, the indicated periods will vary widely according to environmental and usage conditions. However, the indicated components should be inspected when a set is brought for service and the maintenance work performed if necessary. Also note that rubber parts may deform in time, even if the set is not used.

System	Parts Name	Operation Hours	
		~1000H	~2000H
Tape transport	Upper drum assembly	★○	○
	A/C head	★○	★○
	Lower drum assembly	★	★○
	Pinch roller arm assembly	★	★
	Full erase head	★	★
	Tension arm assembly	★	★
	Capstan motor (Shaft)	★	★
	Guide arm assembly	★	★
Drive	Capstan motor		○
	Capstan brake assembly		○
	Main brake assembly		○
	Belt (Capstan)	○	○
	Belt (Loading motor)		○
	Loading motor		○
	Clutch unit		○
	Worm gear		○
Other	Control plate		○
	Brush	★○	★○
	Tension brake assembly	○	○
	Rotary encoder		○

★: Cleaning

○: Inspection or Replacement if necessary

Table 2-1-3

2.2 REPLACEMENT OF MAJOR PARTS

2.2.1 Before Starting Disassembling (Phase matching between mechanical parts)

The mechanism of this unit is closely linked with the rotary encoder and system controller circuits.

Since the system controller detects the status of mechanical operation in response to phases of the rotary encoder (internal switch positions), the mechanism may not operate properly unless such parts as the rotary encoder, control plate, loading arm gear, control cam, cassette gear, limit gear, relay gear and drive gear are installed in their correct positions.

Especially, this model is not provided with any cassette housing assembly, so that cassette loading and unloading must be accomplished by operation of the cassette holder assembly. The latter is in turn driven by such parts as the drive gear, relay gear and limit gear. Exercise enough care, therefore, to have the phases of all this gear matching one another.

(For information on phase matching of the mechanism, see the instructions on how to install individual parts.)

This unit is provided with a mechanism assembly mode. It is therefore necessary to enter this mode for assembling and disassembling procedures. This mode is usually not in use, manually set it when it is required.

2.2.2 How to Set the Mechanism Assembling Mode

Remove the mechanism assembly and place it bottom side up. (See SECTION 1 DISASSEMBLY.) Turn the worm gear toward the front so that the guide hole of the control cam is brought into alignment with the hole at the mechanism assembly chassis. This position renders the mechanism assembling mode operational. Make sure that the control plate is located in alignment with the mark E. (See Fig.2-2-1.)

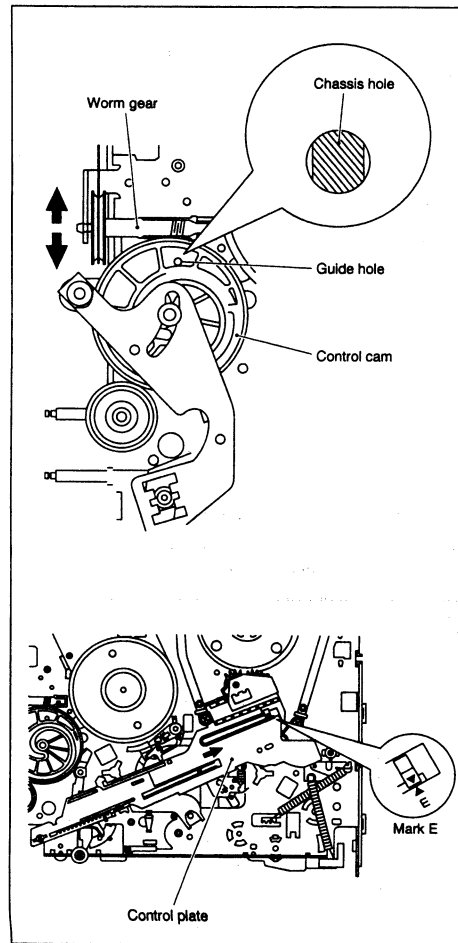


Fig. 2-2-1

2.2.3 Cassette Holder Assembly

1. How to remove

- (1) Remove the guide rail and roller cam assembly. (See Fig.2-2-2.)
(3 lugs on the guide rail and one lug on the roller cam assembly)

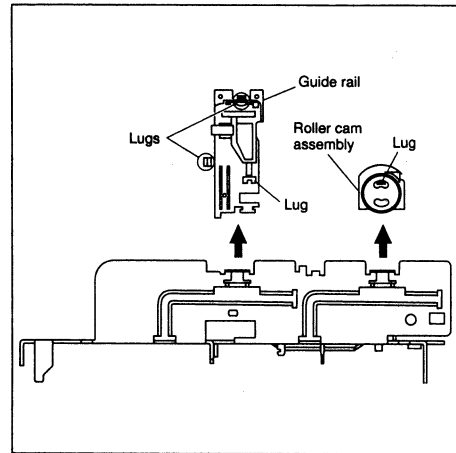


Fig. 2-2-2

- (2) Remove the two slit washers and remove the cassette housing bracket. (See Fig.2-2-3.)
- (3) Remove the opener guide, spring(A), door opener, relay gear and limit gear. (See Fig.2-2-3.)

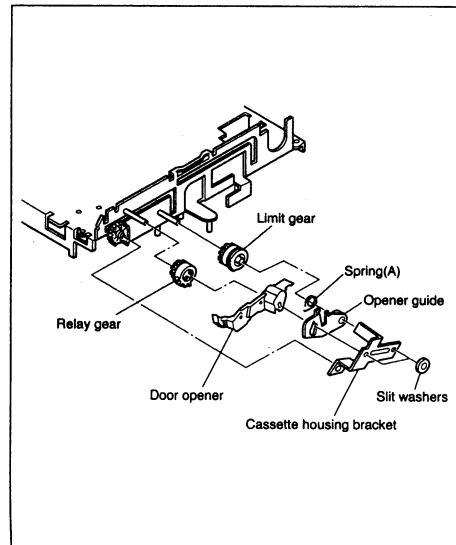


Fig. 2-2-3

- (4) While swinging the lock levers (R) and (L) of the cassette holder assembly toward the front, slide the cassette holder assembly until its legs come to where the guide rail and the roller cam assembly have been removed (so that the drive arm is upright). (See Fig.2-2-4.)

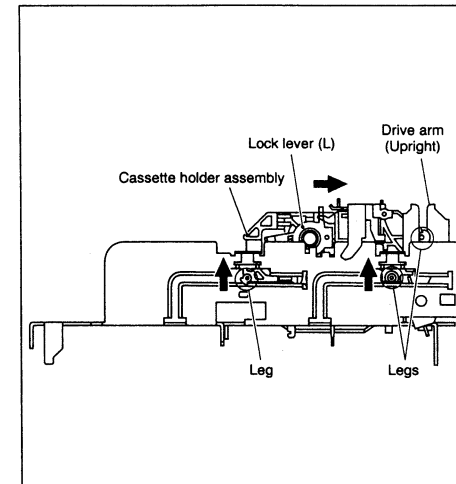


Fig. 2-2-4

- (5) While holding the left side of the cassette holder, lift the cassette holder assembly so that the three legs on the left side are all released. Then pull the legs (A) and (B) on the right side out of the rail and also pull up the leg (C). (See Fig.2-2-5 and Fig.2-2-6.)

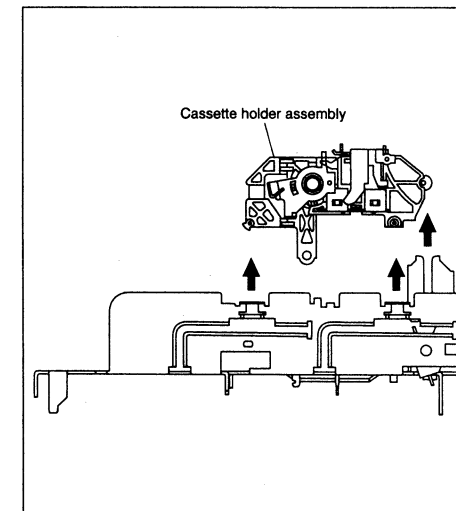


Fig. 2-2-5

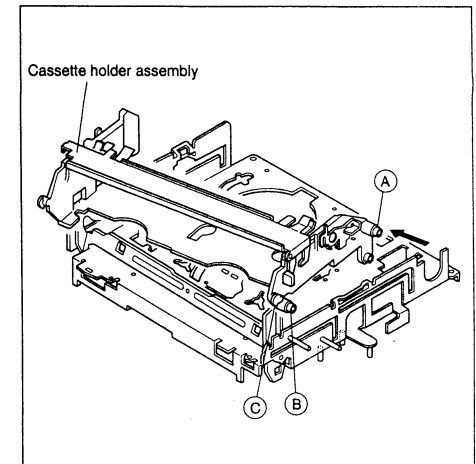


Fig. 2-2-6

- (6) Draw out the drive gear, and remove the drive arm.

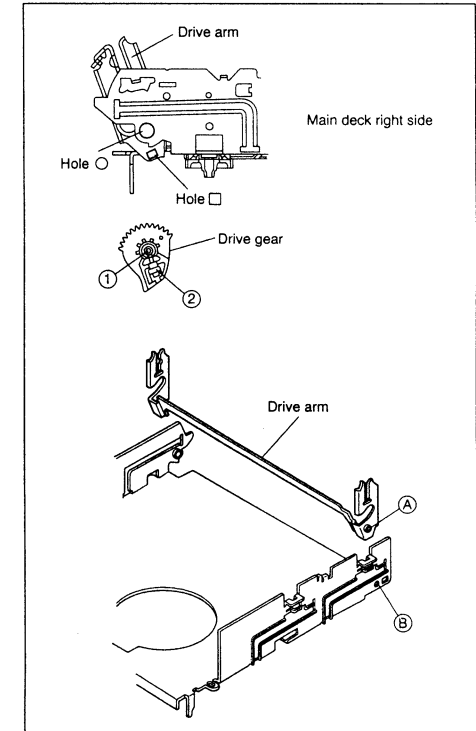


Fig. 2-2-7

2. How to install (Phase matching)

- (1) Insert the section (A) of the drive arm into the section (B) of the main deck.
- (2) Insert the section (1) of the drive gear into the round hole, and the section (2) into the square hole on the drive arm. (See Fig.2-2-7.)
- (3) Hold the drive arm upright and fit the leg (C) on the right side of the cassette holder assembly into the groove. (See Fig.2-2-8.)
- (4) While swinging the lock lever (R) of the cassette holder assembly toward the front, put the legs (A) and (B) into the rail. (See Fig.2-2-8.)
- (5) Drop the three legs on the left side of the cassette holder assembly into the groove at one time. (See Fig.2-2-9.)
- (6) Slide the whole cassette holder assembly toward the front to bring it to the eject end position.
- (7) Install the limit gear so that the notch on the outer circumference of the limit gear is brought into alignment with the guide hole on the main deck. (See Fig.2-2-10.)
- (8) Install so that the notch on the periphery of the relay gear is aligned with the notch of the main deck and that hole A of the relay gear is aligned with the hole B of the limit gear and that hole B of the relay gear is aligned with the hole B of the drive gear. (See Fig.2-2-10.)
- (9) Install the door opener, opener guide, spring(A) and cassette housing bracket and fasten the two slit washers.

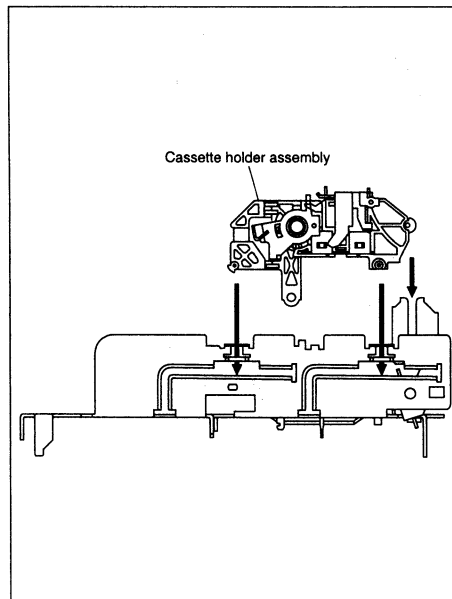


Fig. 2-2-9

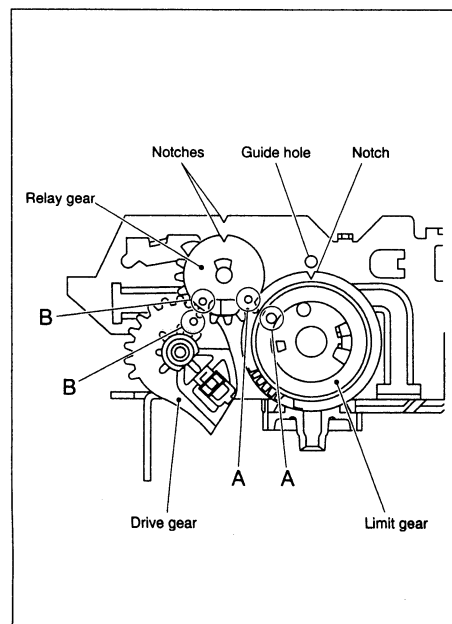


Fig. 2-2-10

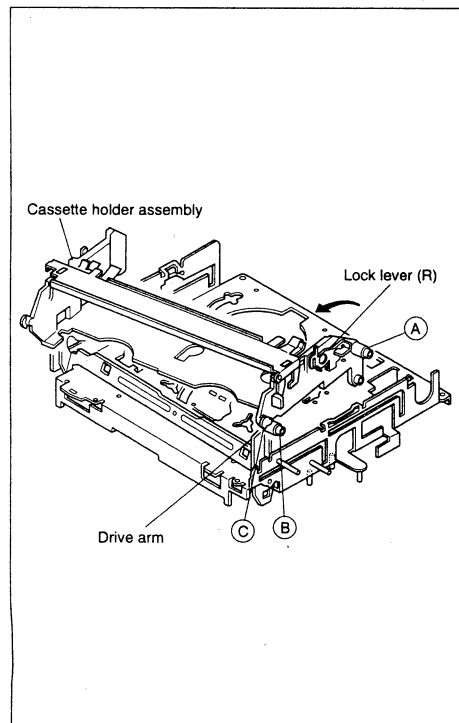


Fig. 2-2-8

2.2.4 Pinch Roller Arm Assembly

1. How to remove

- (1) Remove the spring from the hook of the press lever assembly.
- (2) Remove the slit washer and remove the pinch roller seat 2. (See Fig.2-2-11.)
- (3) Remove the pinch roller arm assembly by pulling it up.

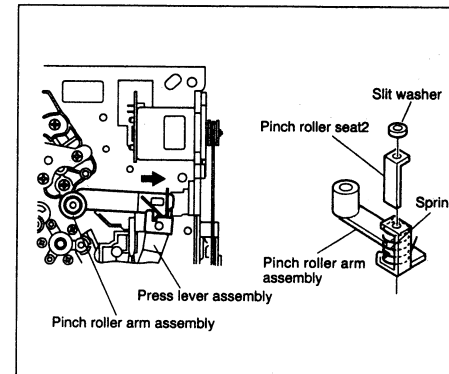


Fig. 2-2-11

2.2.5 Guide Arm Assembly and Press Lever Assembly

1. How to remove

- (1) Remove the spring and expand the lug of the lid guide in the arrow-indicated direction. Then remove the guide arm assembly by pulling it up.
- (2) Remove the press lever assembly by pulling it up. (See Fig.2-2-12.)

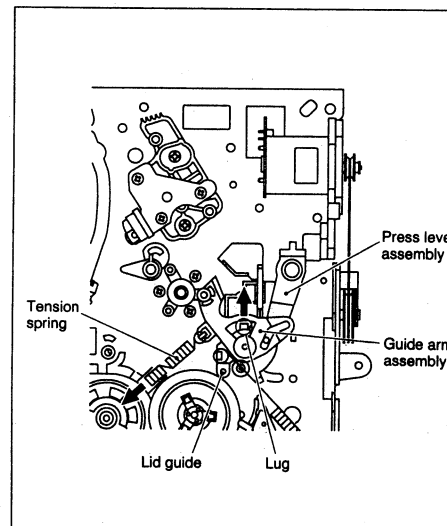


Fig. 2-2-12

2.2.6 Audio Control Head

1. How to remove

- (1) Remove the two screws (A) and remove the audio control head together with the head base.

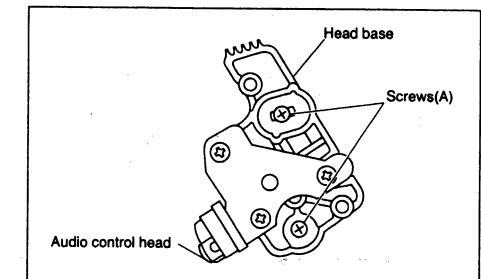


Fig. 2-2-13

- (2) When replacing only the audio control head, remove the three screws (B) while controlling the compression spring.

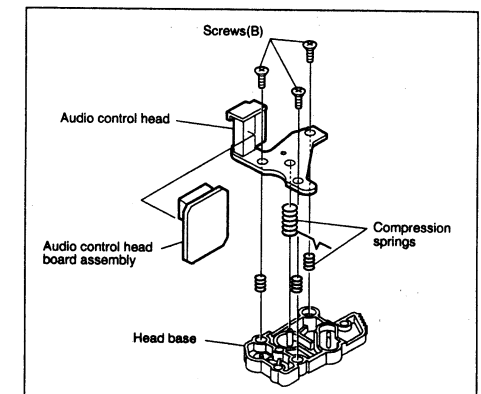


Fig. 2-2-14

2. How to install

- (1) To make the post-installation adjustment easier, set the temporary level as indicated in Fig.2-2-15. Also make sure that the screw center is brought into alignment with the center position of the slot.

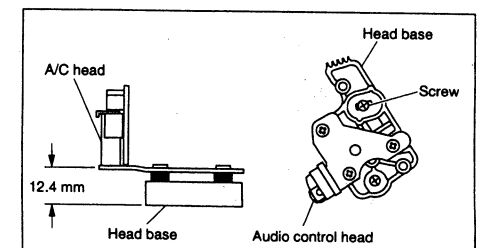


Fig. 2-2-15

2.2.7 Loading Motor

1. How to remove

- (1) Remove the belt wound around the worm gear.
- (2) Open the two lugs of the motor guide and remove the loading motor, loading motor board assembly and motor guide altogether by pulling them up.
- (3) When replacing the loading motor board assembly, take care with the orientation of the loading motor. (Install so that the loading motor label faces upward.)
- (4) When the motor pulley has been replaced, choose the fitting dimension as indicated in Fig. 2-2-16.

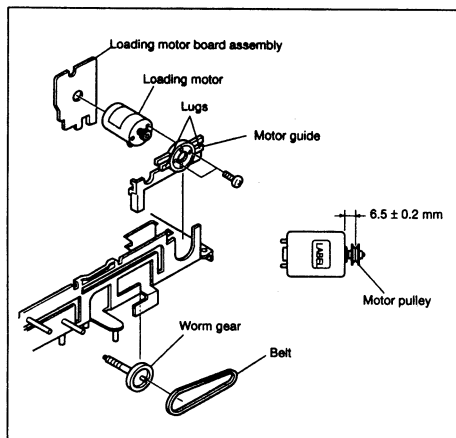


Fig. 2-2-16

2.2.8 Capstan Motor

1. How to remove

- (1) Remove the belt (capstan) on the mechanism assembly back side.
- (2) Remove the three screws (A) and remove the capstan motor.

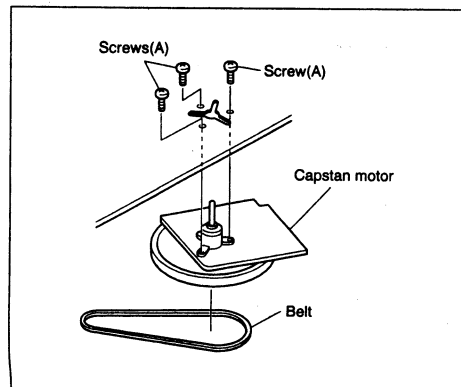


Fig. 2-2-17

2. How to install (Centering the mounting position)

When the capstan motor has once been removed and then reinstalled out of the initial correct position in the rotational direction, the capstan motor current may be unstable during operation in high or low temperatures. This may result in greater Wow & Flutter and occasionally in power breakdown because of current over - load. Install the capstan motor while following the procedure given below. (The capstan motor is centrally located when the unit is shipped from the factory.)

- (1) Provisionally tighten the three screws (A) securing the capstan motor.
- (2) Install the mechanism assembly to which the capstan motor is provisionally fastened on the bottom chassis which incorporates the Main board assembly. (No need to tighten the screws for mounting the mechanism.) Make sure that all the connectors for the mechanism assembly and the Main board assembly are correctly installed as indicated in Fig. 2-2-18.

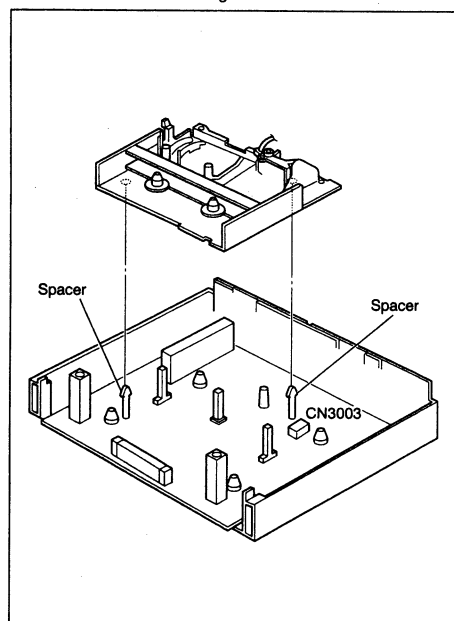


Fig. 2-2-18

- (3) Making sure that the connector CN3003 of the capstan motor is correctly mounted, and securely tighten the three screws (A).

Note: When the capstan motor has been replaced with a new one, perform recording in the LP mode for at least 2 minutes at normal temperatures immediately before starting the FF/REW or SEARCH operations (Aging).

2.2.9 Pole Base Assembly (supply or take-up side)

1. How to remove

- (1) Remove the UV catcher 2 on the removal side by loosening the screw (A).
- (2) Remove the pole base assembly on the supply side from the mechanism assembly by loosening the screw (B) on the mechanism assembly back side and sliding the pole base assembly toward the UV catcher 2.
- (3) As for the pole base assembly on the take-up side, turn the pulley of the loading motor to lower the cassette holder because the screw (B) is hidden under the control plate. (See the "Procedures for Lowering the Cassette holder assembly" of 1.3 DISASSEMBLY/ASSEMBLY METHOD.) Further turn the motor pulley to move the cassette holder until the screw (B) is no longer under the control plate (in the half-loading position). Then remove it as done for the supply side by removing the screw (B).

NOTE: After reinstalling the Pole base assembly and the UV catcher2, be sure to perform compatibility adjustment.

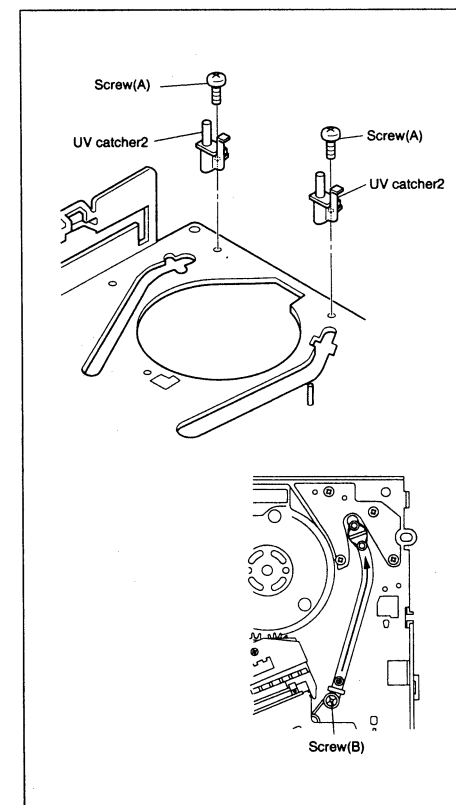


Fig. 2-2-19

2.2.10 Rotary Encoder

1. How to remove

- (1) Remove the screw (A) and remove the rotary encoder by pulling it up. (See Fig. 2-2-20.)

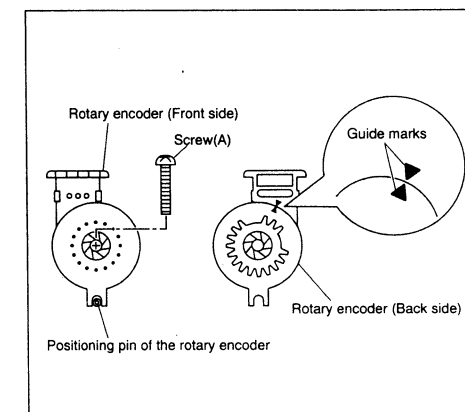


Fig. 2-2-20

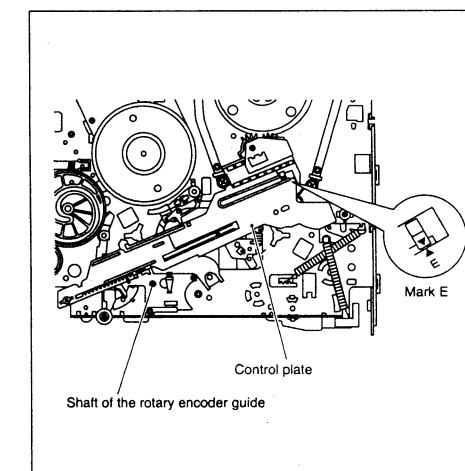


Fig. 2-2-21

2. How to install (Phase matching)

- (1) Make sure that the mark E of the control plate is in alignment with the mark ▼ of the loading arm gear shaft and bring the guide marks on the rotary encoder into alignment as indicated in Fig. 2-2-20. (See Fig. 2-2-20 and Fig. 2-2-21.)
- (2) Turn over the rotary encoder with its guide marks kept in alignment and install it by fitting on the shaft of the rotary encoder guide and the positioning pin.
- (3) Tighten the screw (A) to complete the installation.

2.2.11 Clutch Unit

- (1) Remove the belt wound around the capstan motor and the clutch unit.
- (2) Remove the slit washer and remove the clutch unit.

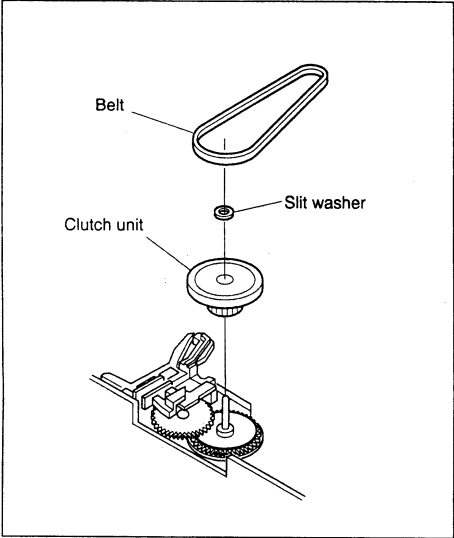


Fig. 2-2-22

2.2.12 Change Lever Assembly, Direct Gear and Clutch Gear1

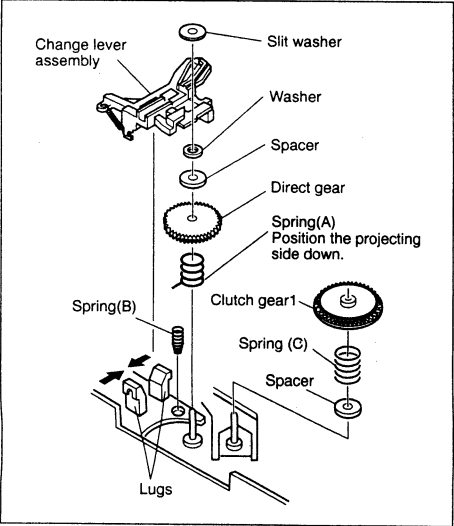


Fig. 2-2-23

1. How to remove

- (1) Release the two lugs of the rotary encoder guide in the arrow-indicated direction and remove the change lever assembly.
- (2) Remove the slit washer retaining the direct gear and remove the latter. Take care so as not to lose the washer and spring. (See Fig.2-2-23.)

2. How to install

- (1) Install the clutch gear1, spring (A), spring (C), direct gear, spacer and others to the individual shafts of the main deck, and finally the slit washer. (See Fig.2-2-23.)
- (2) Let the spring (B) drops into the rotary encoder guide hole and install the change lever assembly. (Take care not to mistake a direction of the spring.) The point is to slightly lift the clutch gear1 and catch it from the both sides with the assembly. (See Fig.2-2-24.)

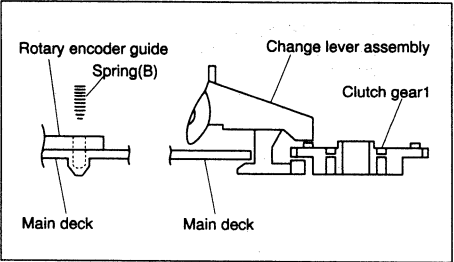


Fig. 2-2-24

2.2.13 Link Lever

1. How to remove

- (1) Remove the two slit washers.
- (2) Remove the link lever by lifting it from the shaft retained by the slit washers. Then swing the link lever counterclockwise and remove it from the locking section of the control plate.

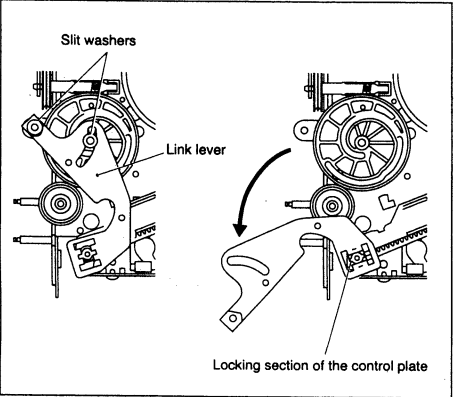


Fig. 2-2-25

2. How to install (Phase matching)

- (1) Slide the control plate so that its mark E is aligned with the mark ▼ on the loading arm gear shaft. (See Fig.2-2-26.)
- (2) Rotate the worm gear until the guide hole of the control cam is aligned exactly with the guide hole of the main deck. (See Fig.2-2-27.)
- (3) Insert the link lever into the locking section of the control plate. (See Fig.2-2-25.)
- (4) Rotate the link lever clockwise so that it is installed on the shafts in the center and on the left of the control cam.
- (5) Fasten the slit washers at these two points.

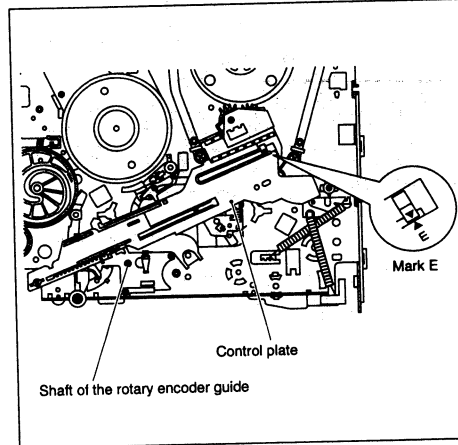


Fig. 2-2-26

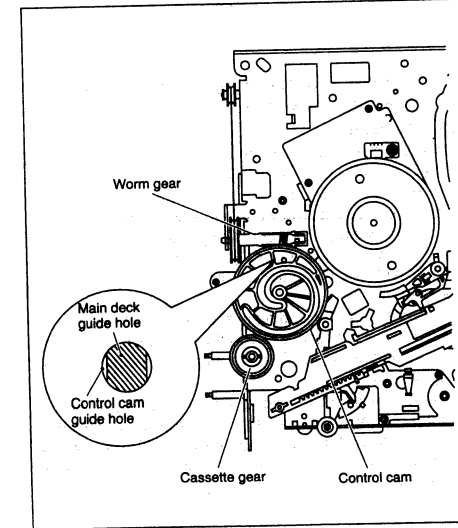


Fig. 2-2-27

2.2.14 Cassette Gear, Control Cam and Worm Gear

1. How to remove

- (1) Remove the control cam by lifting it.
- (2) Open the two lugs of the cassette gear outward and pull the latter off.
- (3) Remove the belt wound around the worm gear and the loading motor.
- (4) Open the lug of the lid guide outward and remove the worm gear.

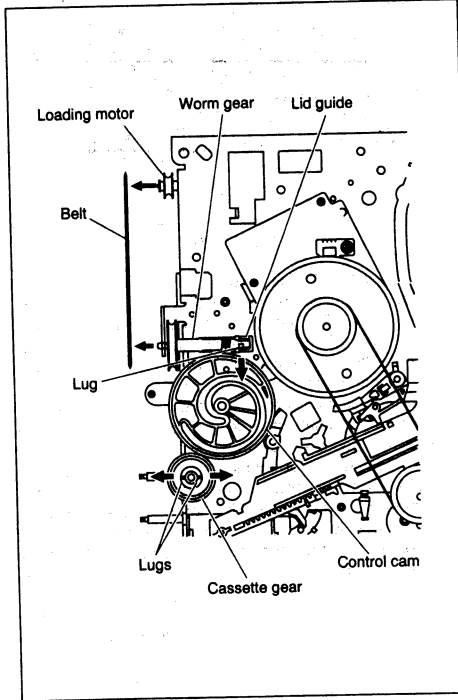


Fig. 2-2-28

2.2.15 Control Plate

1. How to remove

- (1) Remove the screw (A) retaining the control bracket 1 and remove the latter.
- (2) Slide the control plate as indicated by the arrow and remove the control plate. (See Fig.2-2-29.)

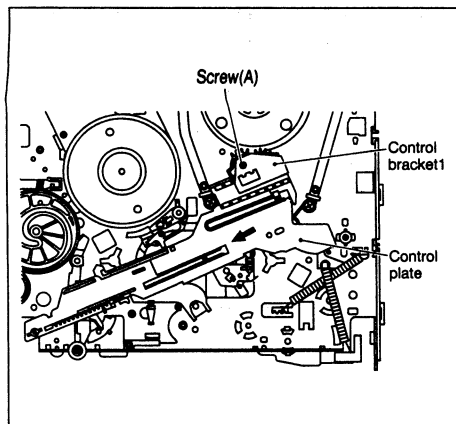


Fig. 2-2-29

2. How to install (Phase matching)

- (1) Adjust the position of the idler arm assembly pin as indicated in Fig.2-2-30 (to the left of centre of the R section).
- (2) Bring the guide hole of the take-up lever into alignment with the hole at the control plate guide and fix the position by inserting a 1.5 mm hexagonal wrench.
- (3) Install the control plate so that the section A of the loading arm gear shaft fits into the hole (A) of the control plate, the section B of the control plate guide into the hole (B), and the control plate comes under the section C of the rotary encoder guide and the section D of the loading arm gear shaft while press-fit the pole base assembly (supply side) as indicated by the arrow. It is important that the tension arm assembly shaft is positioned closer toward you than the control plate. (See Fig.2-2-31.)
- (4) Make sure that the mark E of the control plate is in alignment with the mark ▼ of the loading arm gear shaft. (See Fig.2-2-31.)
- (5) Pull off the hexagonal wrench for positioning.

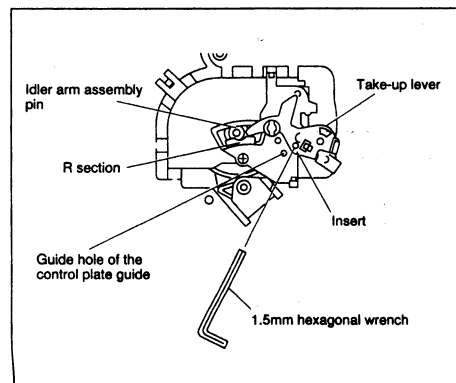


Fig. 2-2-30

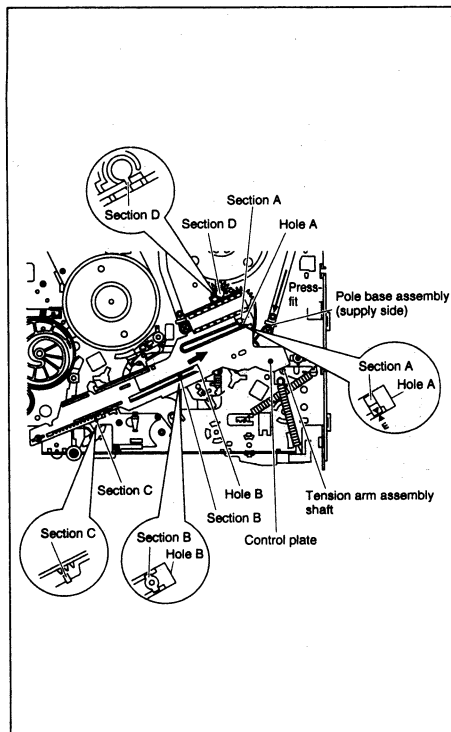


Fig. 2-2-31

2.2.16 Loading Arm Gear (supply or take-up side) and Loading Arm Gear Shaft

1. How to remove

- (1) Remove the loading arm gear (supply side) by loosening the screw (A). (See Fig. 2-2-32.)
- (2) Remove the screw (B) and remove the torsion arm from the pole base assembly (take-up side). (See Fig.2-2-32.)
- (3) Turn the loading arm gear (take-up side) clockwise so that the notch of the loading arm gear (take-up side) is in alignment with the projection of the loading arm gear shaft and lift it. Likewise, turn the loading arm counterclockwise so that the notch is in alignment with the projection and remove the loading arm gear (take-up side). (See Fig.2-2-32 and Fig. 2-2-33.)
- (4) When removing the loading arm gear shaft, be sure of first removing the screw retaining the drum assembly (on the back side of the loading arm gear shaft). Then remove the screw (C) and remove the loading arm gear shaft by sliding it.

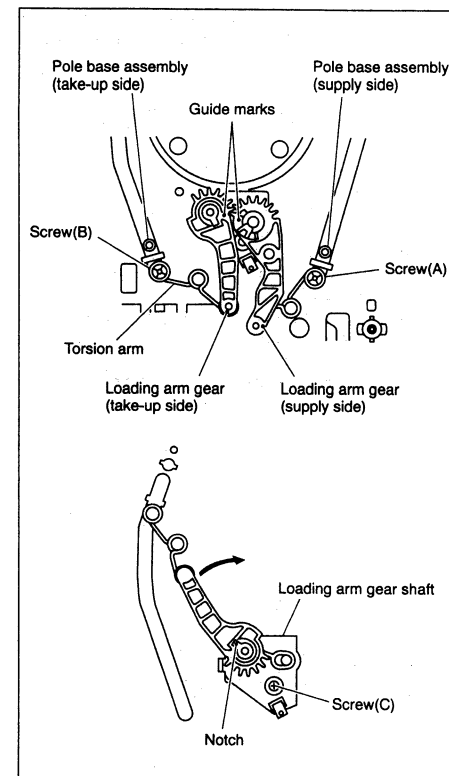


Fig. 2-2-32

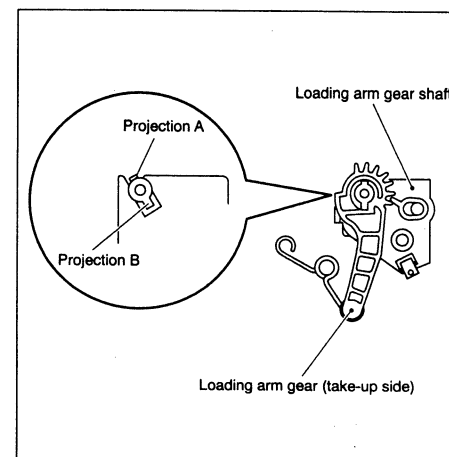


Fig. 2-2-33

2. How to install

- (1) Align the notch of the loading arm gear (take-up side) to the projection B of the loading arm gear shaft and slip it over. Then rotate it clockwise for alignment with the projection A and slip it down to the bottom. (See Fig.2-2-33.)
- (2) Then turn the loading arm gear (take-up side) counterclockwise. Hang the torsion arm on the pole base assembly (take-up side) and tighten the screw (B).
- (3) Install the loading arm gear (supply side) so that the guide mark of the loading arm gear (take-up side) is in alignment with the guide mark of the loading arm gear (supply side). Then hang the torsion arm on the pole base assembly (supply side) and tighten the screw (A). (See Fig.2-2-32.)

2.2.17 Take-up Lever, Take-up Head and Control Plate Guide

- (1) Remove the spring of the take-up lever from the main deck.
- (2) Remove the lug (A) of the take-up lever from the main deck and pull out the take-up lever and the take-up head together.
- (3) Remove the screw (A).
- (4) Align the idler arm assembly pin in the center of the R section of the control plate guide, remove the control plate guide lugs (B) and (C) from the main deck, and remove the control plate guide.

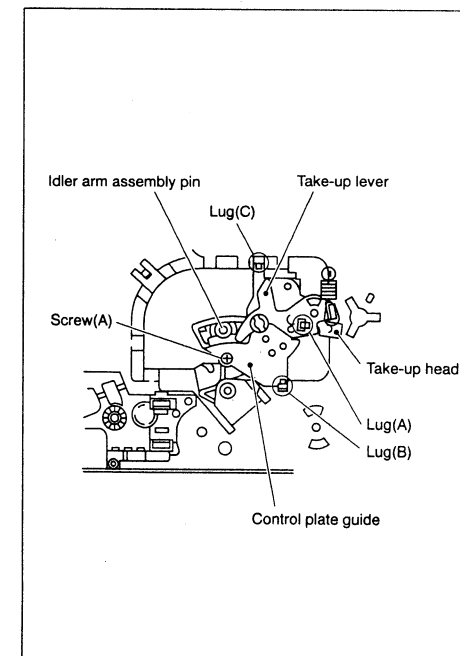


Fig. 2-2-34

2.2.18 Capstan Brake Assembly

1. How to remove

- (1) Move the lug (A) of the capstan brake assembly in the arrow-indicated direction so that it comes into alignment with the notch of the main deck. (See Fig. 2-2-35.)
- (2) Remove the lug (B) of the capstan brake assembly from the main deck and remove the capstan brake assembly.

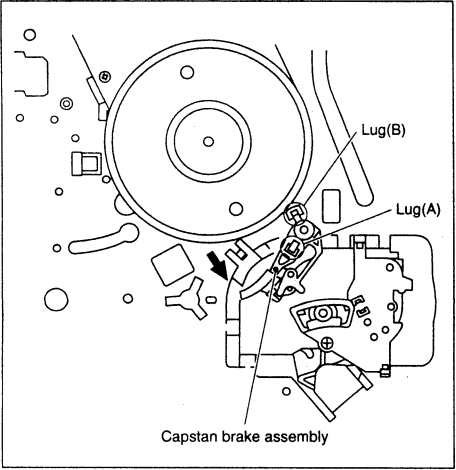


Fig. 2-2-35

2.2.19 Sub Brake Assembly (take-up side)

1. How to remove

- (1) Remove the spring attached to the lid guide and sub brake assembly (take-up side).
- (2) Bring the lug (A) of the sub brake assembly (take-up side) into alignment with the notch of the main deck.
- (3) Remove the lugs (B) and (C) of the sub brake assembly (take-up side) from the main deck and remove the sub brake assembly (take-up side).

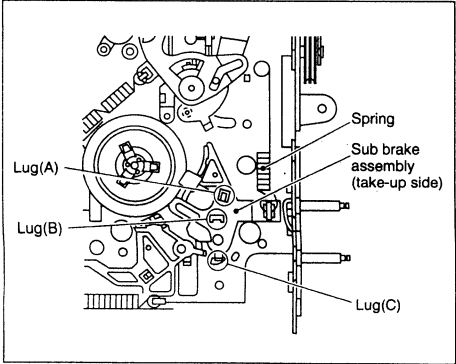


Fig. 2-2-36

2.2.20 Main Brake Assembly (take-up side), Reel Disk (take-up side) and Main Brake Assembly (supply side)

1. How to remove

- (1) Move the main brake assembly (take-up side) in the arrow-indicated direction and remove the reel disk (take-up side).
- (2) Remove the spring attached to the main brake assembly.
- (3) Remove the lug (A) of the main brake assembly (take-up side) and pull out the lug (B) after bringing it into alignment with the main deck notch.
- (4) Remove the lugs (C), (D) and (E) of the main brake assembly (supply side) from the main deck and pull them off. (See Fig. 2-2-37.)

Note: If the main brake assembly is difficult to remove, press it and hold the adjustment pin from the back side of the main deck when attempting to remove it. After the adjustment pin has been removed or the main brake assembly or the reel disk on the supply or take-up side have been replaced, it is required to adjust the main brake assembly torque. See page 2-23 for the detailed adjustment procedures.

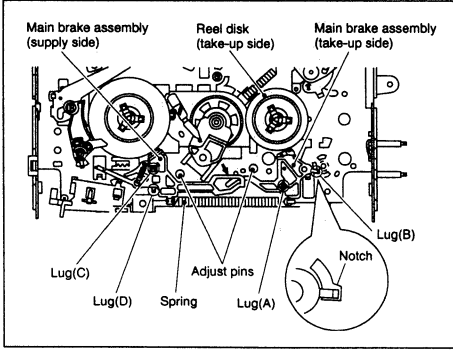


Fig. 2-2-37

- (5) When installing the main brake assembly (take-up side), slide the brake lever in the direction as indicated by the arrow to prevent it from hitting the projection of the main brake assembly (take-up side). (See Fig. 2-2-38.)

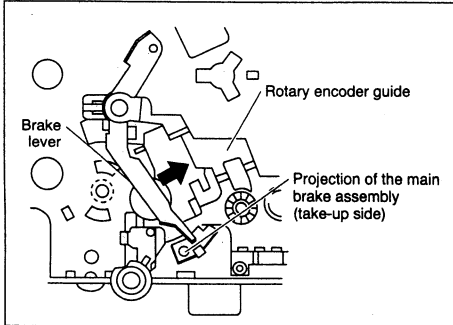


Fig. 2-2-38

2.2.21 Tension Brake Assembly, Reel Disk (supply side) and Tension Arm Assembly

1. How to remove

- (1) Remove the three lugs of the tension brake assembly from the main deck and pull them off.
- (2) Remove the reel disk (supply side) by loosening in the arrow-indicated direction the main brake assembly (supply side).
- (3) Remove the tension spring on the back of the main deck. Then release the lug of the tension arm bearing in the arrow-indicated direction and draw out the tension arm assembly. (See Fig. 2-2-39.)

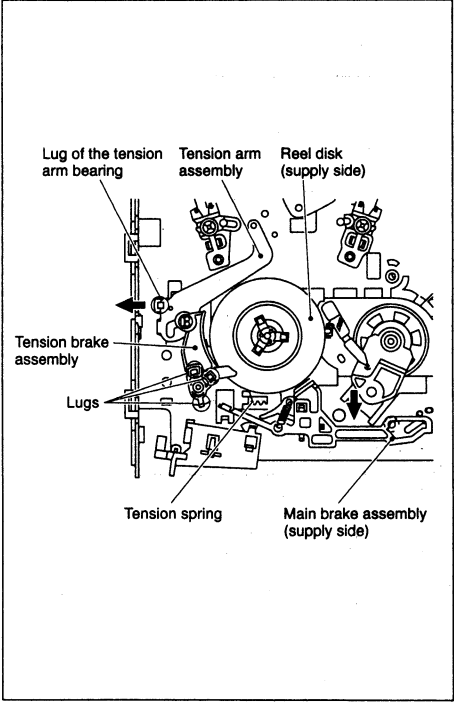


Fig. 2-2-39

2.2.22 Idler Lever, Idler Arm Assembly

1. How to remove

- (1) Remove the lug of the idler lever from the main deck and remove the hook fitted in the idler arm assembly by lifting it.
- (2) Remove the slit washer and pull out the idler arm assembly.

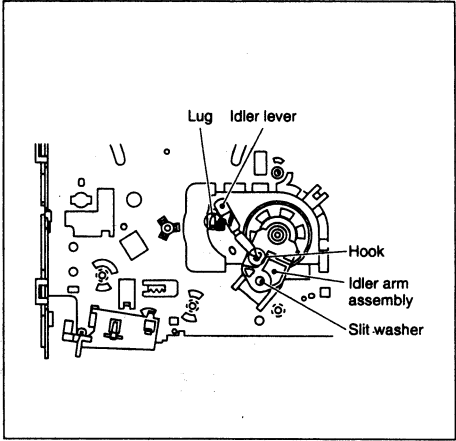


Fig. 2-2-40

2.2.23 Stator Assembly

- (1) Remove the flat cable.
- (2) Remove the two screws (A).
- (3) Remove the stator assembly by lifting in the arrow-indicated direction. (Take care that the brush spring does not jump out.)
- (4) After installation, be sure to perform the PB switching point adjustment according to the electrical adjustment procedure.

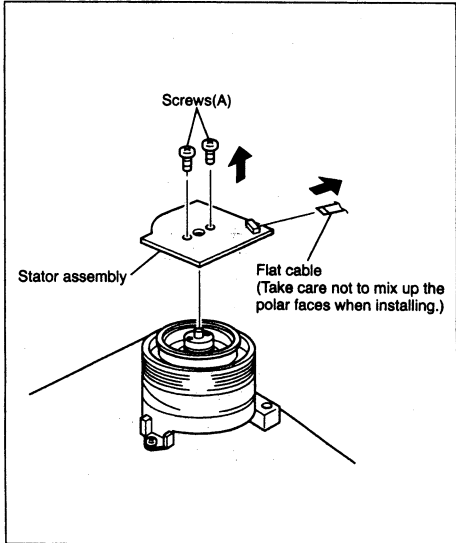


Fig. 2-2-41

2.2.24 Rotor Assembly

- (1) Remove the stator assembly.
- (2) Remove the two screws (B) and remove the rotor assembly.

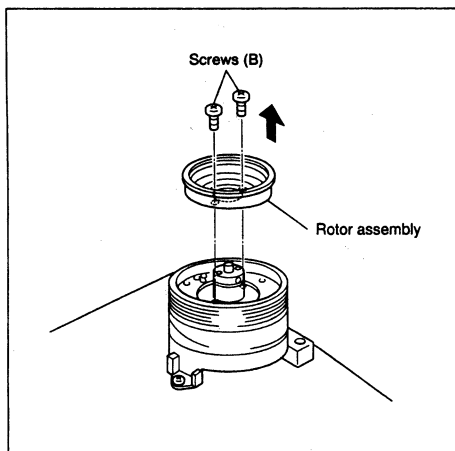


Fig. 2-2-42

Note: When installing the rotor assembly, note that a normal picture cannot be obtained without ensuring the phase matching as mentioned below.

- (3) Match the phases of the upper drum assembly and the rotor assembly as indicated in Fig.2-2-43.
- (4) Place the upper drum assembly hole (a) over the rotor assembly holes (b) (with three holes to be aligned) and tighten the two screws (B). (See Fig.2-2-43.)

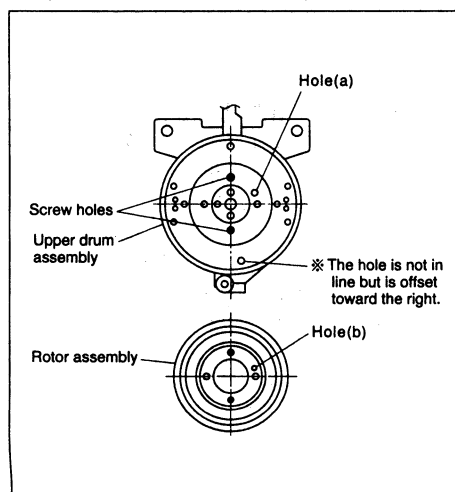


Fig. 2-2-43

2.2.25 Upper Drum Assembly

1. How to remove

- (1) Remove the stator assembly and rotor assembly.
- (2) Loosen the screw of the collar assembly using a 1.5 mm hexagonal wrench and remove the collar assembly. Also remove the brush, spring and cap at one time.
- (3) Remove the upper drum assembly and remove the washer using tweezers.

Note: When replacement is required, control the up-down movement of the brush. Never apply grease.

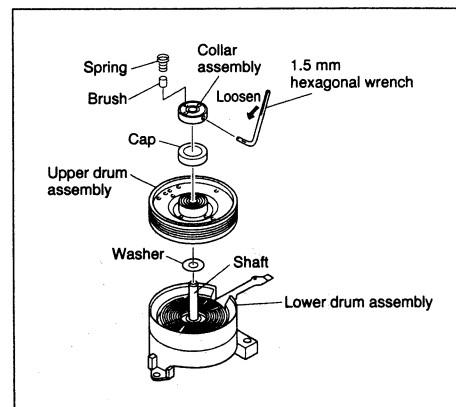


Fig. 2-2-44

2. How to install

- (1) Clean the coil parts of the lower drum assembly and the newly installed upper drum assembly with an air brush in advance. (See Fig.2-2-45.)
- (2) Install a new washer and upper drum assembly on the drum shaft. (See Fig.2-2-44.)

Note: When replacing the upper drum assembly, replace it together with the washer.

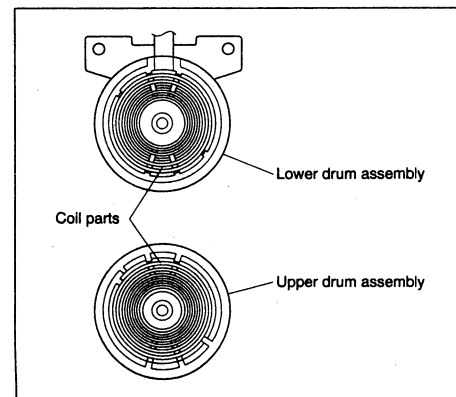


Fig. 2-2-45

- (3) Install the cap to the upper drum assembly.
- (4) Position the collar assembly as indicated in Fig.2-2-46 while controlling its up-down movement.

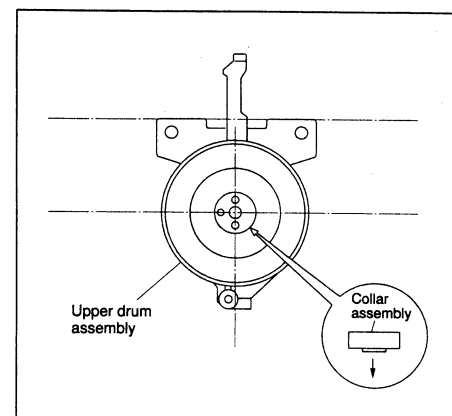


Fig. 2-2-46

- (5) Secure the collar assembly in position with a hexagonal wrench while pressing its top with the fingers.

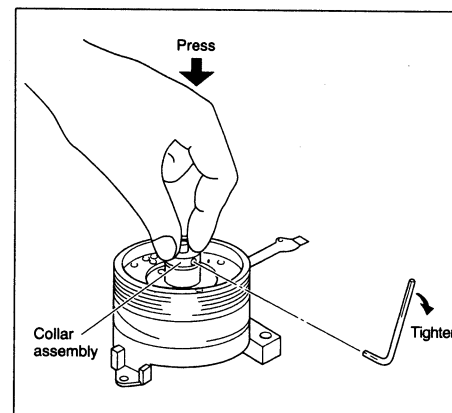


Fig. 2-2-47

- (6) After installation, gently turn the upper drum assembly with your hand to make sure that it turns normally. Then install the brush and the spring.
- (7) Install the rotor assembly and stator assembly according to Fig.2-2-41 and 2-2-42.
- (8) When installation is complete, clean the upper drum assembly and lower drum assembly and carry out the following adjustments.
 - PB switching point adjustment
 - Slow tracking adjustment
 - Compatibility adjustment (Be sure to check for compatibility for the LP mode.)

2.3 COMPATIBILITY ADJUSTMENT

Notes:

- Although compatibility adjustment is very important, it is not necessary to perform this as part of the normal servicing work. It will be required when you have replaced the audio control head, drum assembly or any part of the tape transport system.
- To avoid any damage to the alignment tape while performing the compatibility adjustment, get a separate cassette tape (for recording and play back) ready to be used for checking the initial tape running behavior.

2.3.1 Checking/Adjustment of FM Waveform Linearity

- (1) Connect the oscilloscope to TP106(V. PB FM) of the main board assembly and to TP111(D.FF) of the main board assembly for external sync connection.
- (2) Playing the alignment tape MHPE, observe the FM waveform.
- (3) Press the channel buttons (▲, ▼) simultaneously during playback to enter the manual tracking mode. (This also brings tracking to the centre.)
- (4) Make sure that there is no significant level drop of the FM waveform caused by the tracking operation, with its generally parallel and linear variation ensured. Perform the following adjustments when required. (See Fig.2-3-1.)
- (5) Reduce the FM waveform while pressing the channel buttons (▲, ▼) during playback. If a drop in level is found on the left side, turn the guide roller of the pole base assembly (supply side) with the roller driver (PTU94002) to make the FM waveform linear. If a drop in level is on the right side, likewise turn the guide roller of the pole base assembly (take-up side) with the guide roller to make it linear. (See Fig.2-3-3.)
- (6) Then play MHPE-L and make sure that the FM waveform varies in parallel and linearly with the tracking operation. When required, perform fine-adjustment of the guide roller of the pole base assembly (supply or take-up side).
- (7) Unload the cassette tape once, play the alignment tape MHPE-L again and confirm the FM waveform.

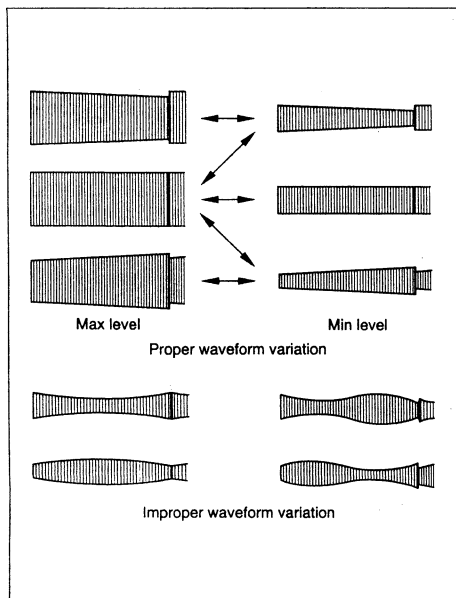


Fig. 2-3-1

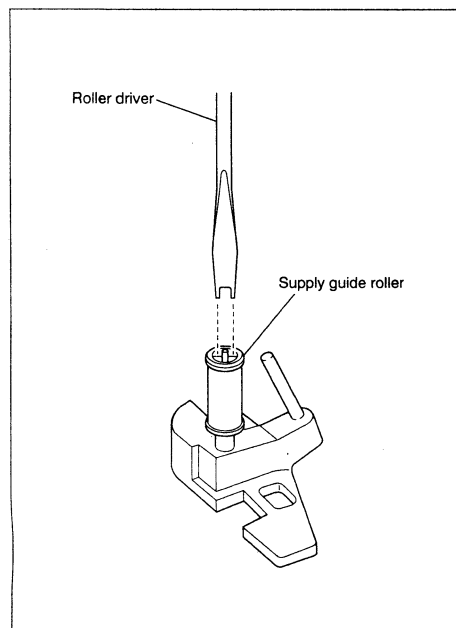


Fig. 2-3-2

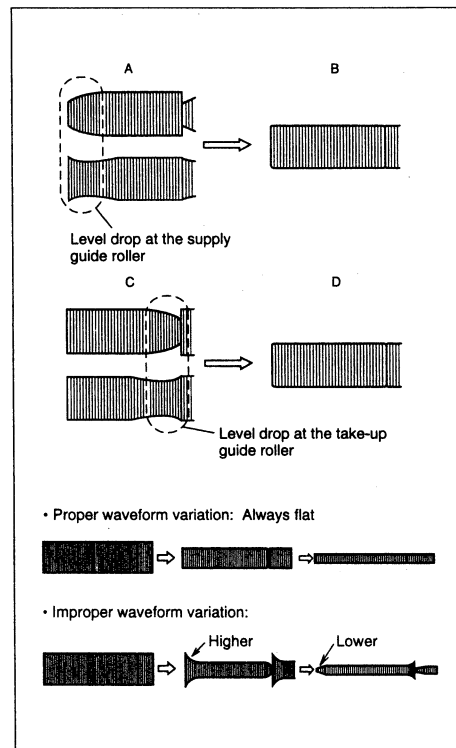


Fig. 2-3-3

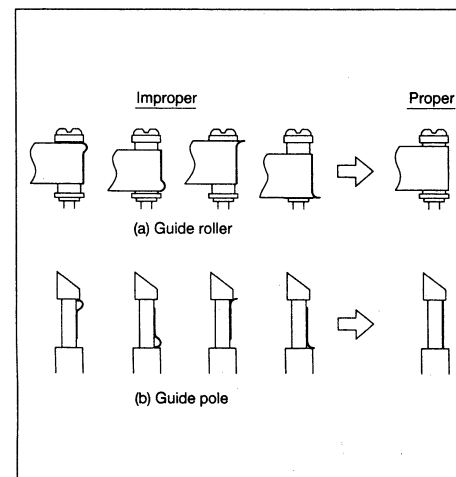


Fig. 2-3-4

2.3.2 Checking/Adjustment of the Height and Tilt of the Audio Control Head

Note: Set a temporary level of the height of the A/C head in advance to make the adjustment easier after the A/C head has been replaced. (See Fig. 2-15.)

- (1) Connect CH-1 of the oscilloscope to AUDIO OUT and CH-2 to TP4001 (CTL.P) of the main board assembly and observe the waveforms on both channels in the ALT mode.
- (2) Play the alignment tape MHPE and adjust it by turning the screws (1), (2) and (3) little by little until the waveform of both the audio output signal and the control pulse reach maximum. The screw (1) and screw (3) are for adjustment of tilt and screw (2) for azimuth.

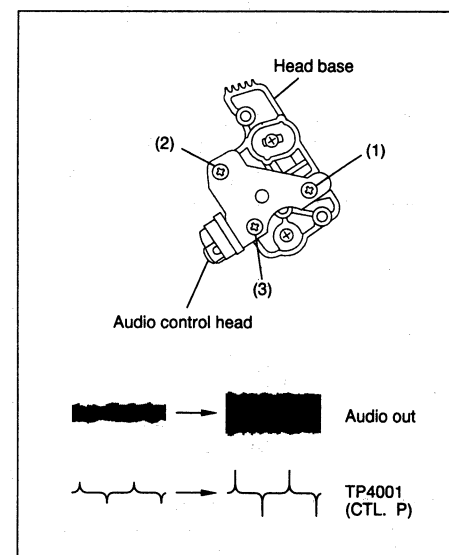


Fig. 2-3-5

2.3.3 Checking/Adjustment of the Audio Control Head Phase (X-Value)

- (1) Connect the oscilloscope to TP106(V. PB FM) of the main board assembly and to TP111(D.F.F) of the main board assembly for external sync connection.
- (2) Play the alignment tape MHPE and observe the FM waveforms.
- (3) Press the channel buttons (▲, ▼) simultaneously during playback to enter the manual tracking mode. (This also brings tracking to the centre.)
- (4) Loosen screws (4) and (5) so that the A/C head position bit (PTU94010) is set as indicated in Fig. 2-3-6.
- (5) Turn the A/C head position bit fully toward the capstan. Then turn it back gradually toward the drum and stop on the second peak point position of the FM waveform output level. Then tighten the screw (4) temporarily.

- (6) Then play the alignment tape MHPE-L.
- (7) Press the channel buttons (▲, ▼) simultaneously during playback to enter the manual tracking mode. (This also brings the tracking to the centre.)
- (8) Perform the tracking operation and make sure that the FM waveform is at its maximum.
- (9) If it is not at maximum, loosen the temporarily tightened screw (4) and turn the A/C head position bit to a position, around where the waveform reaches its maximum for the first time. Then tighten the screws (4) and (5).

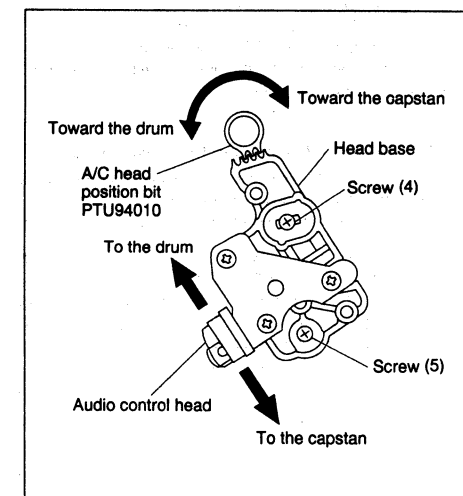


Fig. 2-3-6

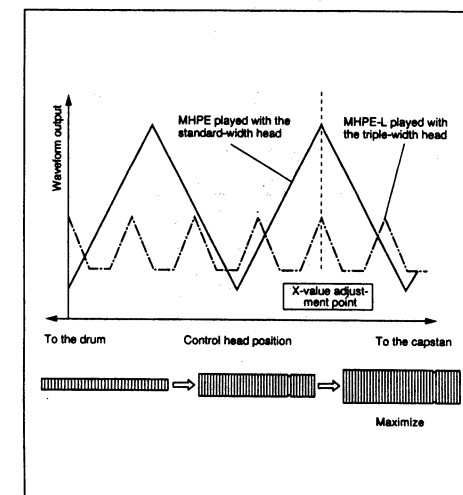


Fig. 2-3-7

2.3.4 Checking/Adjustment of the Standard Tracking Preset

Note: Set the remote control code of the video recorder to A mode.

(The unit set in B mode does not accept the remote control code of the presetting unit.)

- (1) Connect the oscilloscope to TP106(V. PB FM) of the main board assembly and to TP111(D.FF) of the main board assembly for external sync connection.
- (2) Playing the alignment tape MHPE-L and observing the FM waveform, make sure that the auto tracking operation is complete.
- (3) Press the "D" button of the presetting unit twice.
- (4) Make sure that the MHPE-L is not ejected.
- (5) If ejected, again perform the phase (X-value) adjustment of the audio control head.

2.3.5 Checking/Adjustment of the Tension Pole

- (1) Check the back tension cassette gauge (PUJ48076-2) to make sure that the indicator points to 25 - 51 gf•cm.
- (2) If the indicated value is outside this range, carry out the following adjustment steps.
 - 1) Select the mechanism servicing mode. (See 1.5 MECHANISM SERVICE MODE.)
 - 2) While in the Play mode, turn the adjustment pin with a straight-slot screwdriver while taking care not to touch the 2.5 mm dia. pole. (See Fig.2-3-8.)

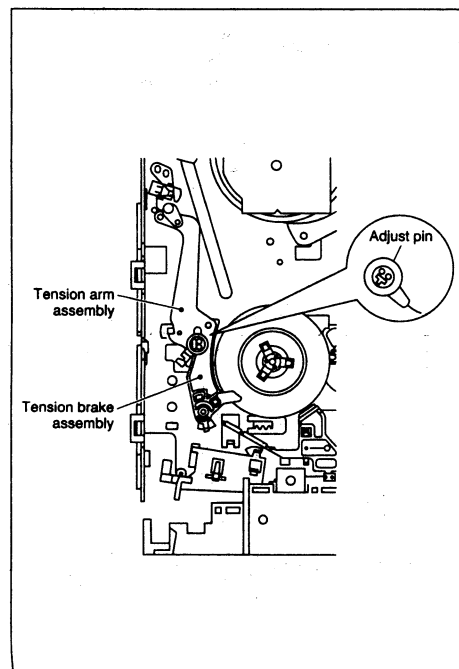


Fig. 2-3-8

2.3.6 Adjustment of the Tension Stud

- (1) Adjust so that the left side of the tension stud is on the extension of the notch line of the main deck. (See Fig. 2-3-9.)

Note: Adjustment is not usually necessary for the tension stud. Perform this adjustment only when it is out of position.

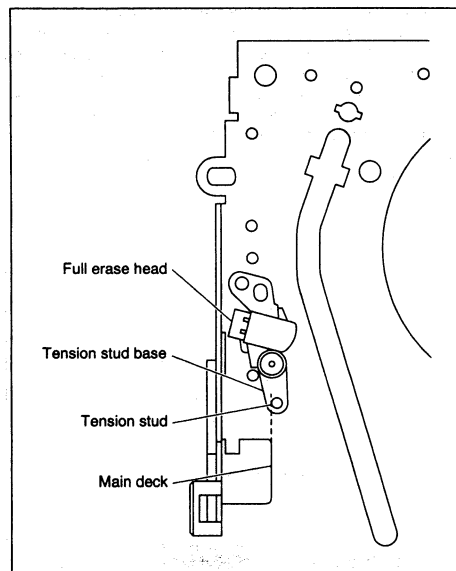


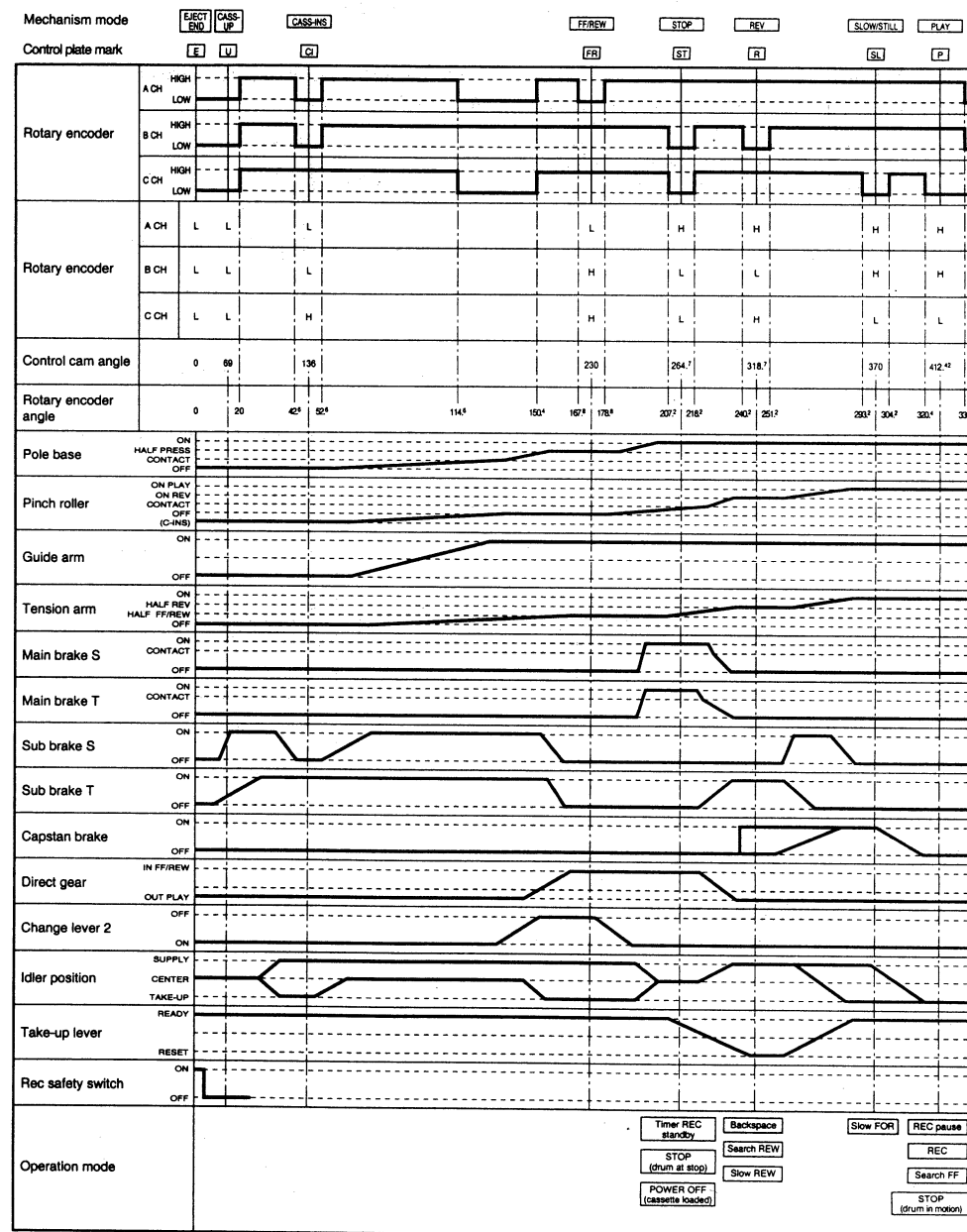
Fig. 2-3-9

2.3.7 Main Brake Torque Adjustment

Note: Adjustment of the main brake torque is required after the adjustment pin has been removed or the main brake assembly or the reel disk on the supply or take-up side have been replaced, removed or attached.

- (1) Rotate the pulley of the loading motor by hand to align the mark ▼ on the loading arm gear shaft with the ST marking on the control plate (i.e. set to the STOP mode position).
- (2) Insert a torque gauge (PUJ48075-2) into the reel disk on the side to be played, hold the torque gauge lightly, rotate it clockwise when measuring the supply side torque or counterclockwise when measuring the take-up side torque, and read the value indicated at the moment the reel disk starts to slip.
- (3) Make sure that the main brake torque values on the supply and take-up sides are both between $23.5 \sim 78.4 \times 10^3 \text{ N}\cdot\text{m}$ ($240 \sim 800 \text{ gf}\cdot\text{cm}$). If the value is outside the specified range, adjust to the specified value by rotating the adjustment pin. If an adjustment by using the adjustment pin is not possible, replace the main brake assembly.

Mechanism Timing Chart



SECTION 3 ELECTRICAL ADJUSTMENT

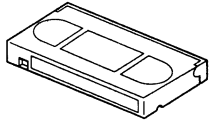
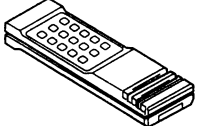
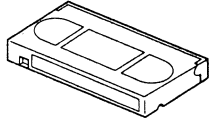
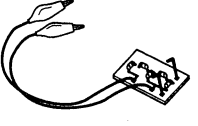
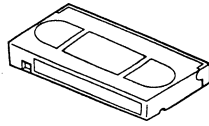
3.1 PRECAUTION

Electrical adjustment are required after replacing circuit components and certain mechanical parts. It is important to perform these adjustments only after all repairs and replacements have been completed. Also do not attempt these adjustments unless the proper equipments is available.

3.1.1 Required test equipment

- ① Colour television or monitor
- ② Oscilloscope: wide-band, dual-trace, triggered delayed sweep
- ③ Frequency counter
- ④ Signal generator: RF/IF sweep/marker
- ⑤ Signal generator: PAL colour bar, stairstep
- ⑥ Recording tape (VHS tape/S-VHS tape)
- ⑦ Digit-key remote controller(provided)

3.1.2 Required adjustment tools

Alignment tape (SP, stairstep) MHPE	Presetting unit PTU94008
	
Alignment tape (S-VHS, SP/LP, colour bar) MH-2H	LPF PTU93006
	
Alignment tape (SP, stairstep) MHP	
	

3.1.3 Colour bar signal, colour bar pattern

● PAL colour bar signal

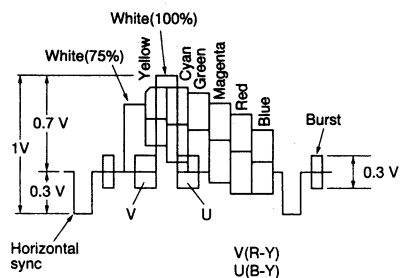


Fig.3-1-1 PAL colour bar signal waveform

● PAL colour bar pattern

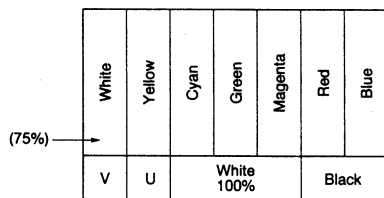


Fig.3-1-2 PAL colour bar pattern

Note:

The system control circuit of this model has an automatic recognition about the ON-OFF control of the **DOCTOR SYSTEM**.

3.2 SERVO CIRCUIT

Notes: • Unless otherwise specified, all measurement points and adjustment parts are located on the MAIN BOARD.

• Set the VCR to the mode A by the remote controller.

3.2.1 PB switching point

Signal	• Alignment tape [MHPE], Stairstep • Alignment tape [MHP], Stairstep
Mode	• PB • TBC : OFF
Equipment	• Oscilloscope
Measurement point	• VIDEO OUT TERMINAL
Trigger slope (-)	• TP111(D.FF)
Adjustment tool	• Presetting unit [PTU94008]
Specification	• $8.0 \pm 0.5H$ [MHPE] • $7.5 \pm 0.5H$ [MHP]

Note: • Use only the "E" and "F" buttons, depressing other buttons during adjustment may cause adjustment errors.

- (1) Playback the stairstep signal of the alignment tape [MHPE].
- (2) Connect an oscilloscope to VIDEO OUT TERMINAL and TP111 (negative slope), and then observe VIDEO OUT TERMINAL.
- (3) Adjust by pressing the "E" or "F" buttons of the presetting unit so that the switching point becomes $8.0 \pm 0.5H$ from V.sync.
- (4) Depress the STOP button.
- (5) Playback the stairstep signal of the alignment tape [MHP].
- (6) Adjust by pressing the "E" or "F" buttons of the presetting unit so that the switching point becomes $7.5 \pm 0.5H$ from V.sync.
- (7) Depress the STOP button.

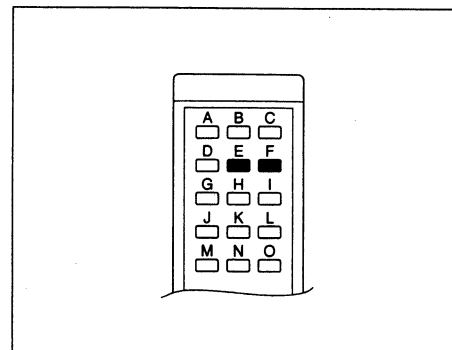


Fig. 3-2-1 Presetting unit

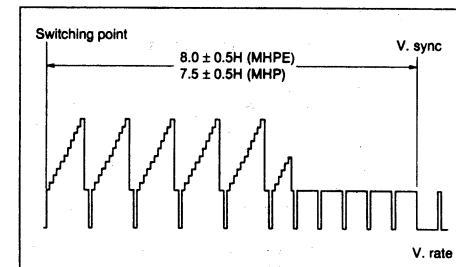


Fig. 3-2-2 PB switching point

3.2.2 Slow tracking preset

Signal	• Tuner or colour bar
Mode	• SP/LP : REC → PB(SLOW) • S-VHS
Equipment	• TV-Monitor
Adjustment tool	• Presetting unit (PTU94008)
Specification	• Minimum noise

Note: • Use only the "B" and "C" buttons, depressing other buttons during adjustment may cause adjustment errors.

- (1) Record a colour bar signal in the SP mode.
- (2) Playback the recorded signal on the FWD slow mode.
- (3) Set the tracking control to the centre position by simultaneously pressing the CH "+" and "-" buttons.
- (4) Observe the display on the TV monitor and adjust for optimum noise condition (best tracking) by depressing the "B" or "C" buttons of the presetting unit.
- (5) Depress the STOP button.
- (6) Confirm that the bar noise is not visible on the TV monitor in the slow mode.
- (7) Repeat steps (2) to (6) in the REV slow mode.
- (8) Repeat steps (1) to (7) in the LP mode.

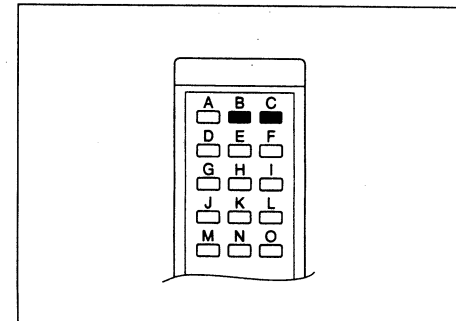


Fig. 3-2-3 Presetting unit

3.3 VIDEO CIRCUIT

Notes: • Unless otherwise specified, all measurement points and adjustment parts are located on the MAIN BOARD.

- VIDEO circuit adjustments are performed by the EVR system by use of the presetting unit and digit-key remote controller.
- S-INPUT means Y/C separated video signal in the chart.
- Set the VCR to the mode A by the remote controller.
- Unless otherwise specified, set the VCR to the following mode.

B.E.S.T	OFF
PICTURE CONTROL	NORMAL
TBC	ON

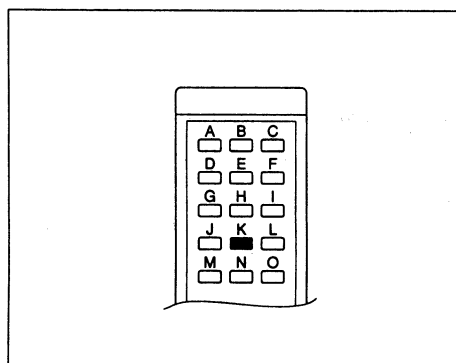


Fig. 3-3-1 Presetting unit

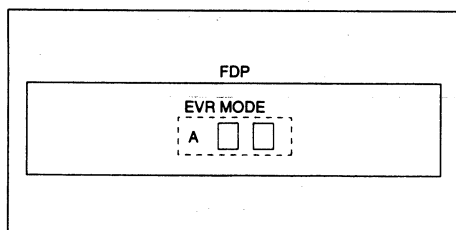


Fig. 3-3-2 EVR mode

3.3.1 EEY level

Signal	• Colour bar
Mode	• EE
Equipment	• Oscilloscope
Measurement point	• Y OUT TERMINAL (75 ohm TERMINATION)
Adjustment tool	• Presetting unit [PTU94008] • Digit-key remote controller
EVR mode	• A : 11
Specification	• 1.00 ± 0.03 Vp-p (terminated)

- (1) Connect an oscilloscope to Y OUT TERMINAL.
- (2) Set the EVR mode by pressing the "K" button of the pre-setting unit.
- (3) Set "A : 11" by twice pressing 1 button of the remote controller.
- (4) Adjust the CH "+" or "-" buttons for 1.00 ± 0.03 Vp-p. (See Fig. 3-3-3.)
- (5) Set the normal VCR mode by pressing the "K" button of the presetting unit again so adjustment data is memorized.

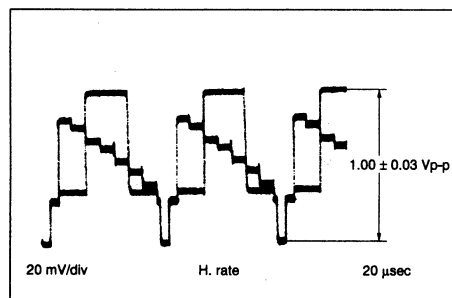


Fig. 3-3-3 EE Y level

3.3.2 SP/LP REC colour level

Signal	• Alignment tape [MH-2H] • Colour bar
Mode	• PB • REC → PB : SP/LP • S-VHS
Equipment	• Oscilloscope
Measurement point	• PB COLOUR
Trigger slope (-)	• TP111 (D,FF)
Adjustment tool	• Presetting unit [PTU94008] • Digit-key remote controller • LPF fixture [PTU93006]
EVR mode	• A : 2
Specification	• "B" × 150 ± 5% : SP • "B" × 110 ± 5% : LP

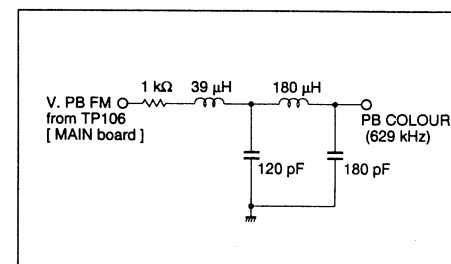


Fig. 3-3-4 LPF

- (1) Connect an oscilloscope to PB COLOUR of a LPF (refer to Fig. 3-3-4) and TP111 (negative slope) on the MAIN board.
- (2) Playback the SP colour bar signal of the MH-2H alignment tape.
- (3) Adjust by pressing the CH "+" or "-" buttons of the Front panel for maximum level of the color waveform and make a note of the higher colour level "B".
- (4) Press the STOP/EJECT button and eject the MH-2H alignment tape.
- (5) Set the EVR mode by pressing the "K" button of the pre-setting unit.
- (6) Set "A : 2" by pressing 2 button of the remote controller.
- (7) Before recording, adjust the CH "+" or "-" buttons of the remote controller so that the higher level channel becomes $150 \pm 5\%$: SP ($110 \pm 5\%$: LP) of the note "B" level during playback as shown in Fig. 3-3-5.
- (8) Record a colour bar signal in the SP (LP) mode, and playback the recorded colour bar signal.
- (9) Set the normal VCR mode by pressing the "K" button again so adjustment data is memorized.

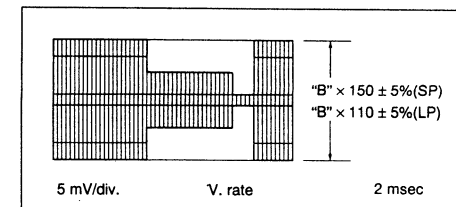


Fig. 3-3-5 REC colour level

3.3.3 PB Y level (S-VHS/VHS)

Signal	• Colour bar
Mode	• REC → PB : SP • S-VHS/VHS
Equipment	• Oscilloscope
Measurement point	• Y OUT TERMINAL (75 ohm TERMINATION)
Adjustment tool	• Presetting unit [PTU94008] • Digit-key remote controller
EVR mode	• A : 11
Specification	• 1.00 ± 0.03 Vp-p (terminated)

- (1) Connect an oscilloscope to Y OUT TERMINAL.
- (2) Set the EVR mode by pressing the "K" button of the pre-setting unit.
- (3) Set "A : 11" by twice pressing 1 button of the remote controller.
- (4) Record a colour bar signal in the S-VHS mode, and playback the recorded colour bar signal.
- (5) Adjust the CH "+" or "-" buttons for 1.00 ± 0.03 Vp-p as shown in Fig. 3-3-6.
- (6) Set the normal VCR mode by pressing the "K" button of the presetting unit again so adjustment data is memorized.
- (7) Repeat steps (1) to (6) in the VHS mode.

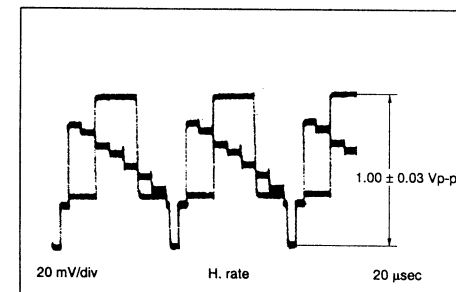


Fig. 3-3-6 PB Y level

3.3.4 S-VHS VIDEO EQ

Signal	• S INPUT • Video sweep
Mode	• REC → PB : SP/LP • S-VHS • Picture control REC : Normal PB : Edit
Equipment	• Oscilloscope
Measurement point	• Y OUT TERMINAL (75 ohm TERMINATION)
Trigger slope (-)	• TP111 (D.FF)
Adjustment tool	• Presetting unit [PTU94008] • Digit-key remote controller
EVR mode	• A : 3
Specification	• 3.6 ± 0.4 scale : SP • 3.2 ± 0.4 scale : LP

- (1) Connect an oscilloscope to Y OUT TERMINAL and TP111 (negative slope).
- (2) Record a video sweep signal in the S-VHS SP mode, then play it back.
- (3) Set the EVR mode by pressing the "K" button of the pre-setting unit.
- (4) Set "A : 3" by pressing 3 button of the remote controller.
- (5) When assuming the 100 KHz sweep signal marker on the bigger channel is four scales on the oscilloscope, adjust the CH "+" or "-" buttons on the front panel or the Digit-key remote controller so that the 3 MHz is set at 3.6 ± 0.4 scale (-1 ± 1.0 dB) while observing Y OUT of the S output. (See Fig. 3-3-7.)
- (6) Set the normal VCR mode by pressing the "K" button of the pre-setting unit again so adjustment data is memorized.
- (7) Carry out the step (3) and (4) in the S-VHS LP mode.
- (8) When assuming the 100 kHz sweep signal marker on the bigger channel is four scales on the oscilloscope, adjust the CH "+" or "-" buttons on the front panel or the Digit-key remote controller so that the 3 MHz is set at 3.2 ± 0.4 scale (-2 ± 1.0 dB) while observing Y OUT of the S output. (See Fig. 3-3-7.)

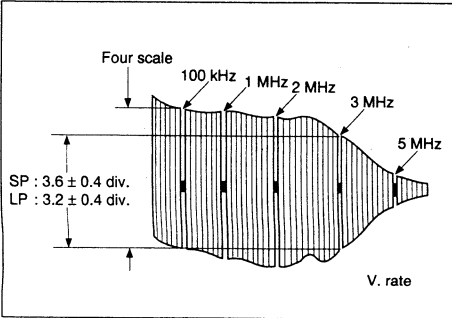


Fig. 3-3-7 S-VHS VIDEO EQ

3.3.5 D/A level

Signal	• Colour bar
Mode	• EE • S-VHS
Equipment	• Oscilloscope
Measurement point	• CN1003-3 pin (Y OUT) [3D SVHS board]
Adjustment part	• VR1401 (D/A LEVEL) [3D SVHS board]
Specification (NOTE)	• 2.05 Vp-p (REFERENCE VALUE)

- (1) Connect the oscilloscope to the CN1003-3 pin(Y OUT) on the 3D SVHS board.
- (2) Confirm the Y level value during external S input.
- (3) Switch the input signal to the external input, then adjust the VR1401 on the 3D SVHS board so that the Y level value becomes the same level value which was confirmed at the step (2).

Note: • The adjusted value of 2.05 Vp-p is a reference value which should be obtained during external S input. The value should be adjusted to the one which was confirmed at step (2).

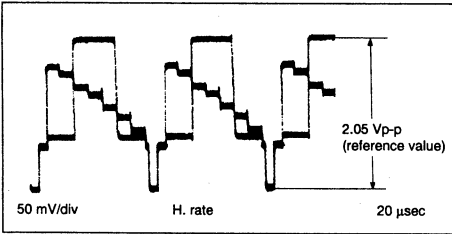


Fig. 3-3-8 D/A LEVEL

3.3.6 Pilot burst level

Signal	• Colour bar
Mode	• EE • S-VHS
Equipment	• Oscilloscope
Measurement point	• TP1001 (FSC PHASE) [3D SVHS board]
Adjustment part	• VR1002 (P. BURST LEVEL) [3D SVHS board]
Specification	• "B" × 110 ± 10%

- (1) Connect the oscilloscope to the TP1001 (FSC PHASE) on the 3D SVHS board.
- (2) Load an S-VHS tape then set the unit to the S-VHS EE mode.
- (3) Adjust the VR1002 of the 3D SVHS so that the pilot burst level becomes "B" × 110 ± 10% against the value of the burst level "B".

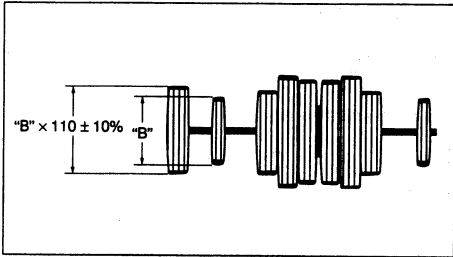


Fig. 3-3-9 PILOT BURST LEVEL

3.3.7 Auto picture

Signal	• Monoscope
Mode	• REC → PB : SP/LP • S-VHS
Adjustment tool	• Presetting unit [PTU94008]
Specification	• STOP mode

- (1) Record a monoscope signal in the SP mode.
- (2) Playback the recorded signal.
- (3) Press the "L" button of the pre-setting unit during playback.
- (4) Confirm that the VCR will go into the STOP mode.
- (5) Repeat steps (2) to (4) in the LP mode.

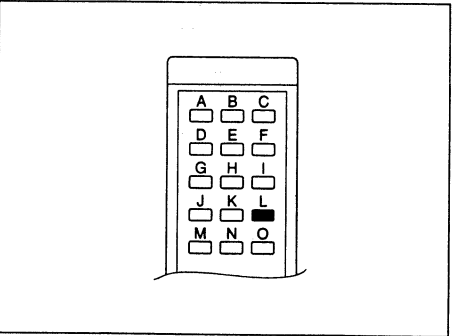


Fig. 3-3-10 Presetting unit

3.4 AUDIO CIRCUIT

Notes: • Unless otherwise specified, all measurement point and adjustment parts are located on the MAIN BOARD.
• This adjustment should be done after the video circuit SP and LP REC colour level are adjusted.
• GND(Ground) should be taken from the tuner board shield.

3.4.1 REC FM level

Signal	• AUX • VIDEO : Colour bar • AUDIO : No signal
Mode	• REC → PB : LP • S-VHS • B.E.S.T : OFF
Equipment	• Oscilloscope
Measurement point	• TP2253 (A. PB FM)
Trigger slope (-)	• TP111 (D. FF)
Adjustment part	• VR2251 (A. REC. FM)
Specification	• 600 ± 100 mVp-p

- (1) Connect an oscilloscope to TP2253.
- (2) Record a colour bar signal without an audio signal in the S-VHS LP mode then playback.
- (3) Adjust VR2251 for 600 ± 100 mVp-p playback level of higher channel level before recording.
- (4) Confirm that the lower channel level is more than 450 mVp-p.

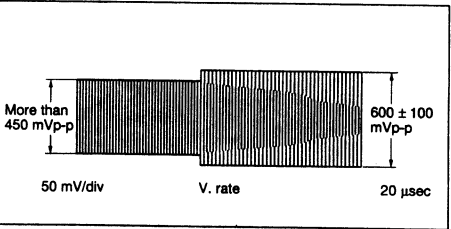


Fig. 3-4-1 Audio REC FM level

3.5 SYSCON CIRCUIT

Notes: • Unless otherwise specified, all measurement points and adjustment parts are located on the MAIN BOARD.
• When perform this adjustment, remove the MECHANISM assembly.

3.5.1 Timer clock

Signal	• No signal
Mode	• EE
Equipment	• Frequency counter
Measurement point	• IC3001-PIN61
Adjustment part	• C3025 (TIMER CLOCK)
Specification	• 1024.008 ± 0.001 Hz [976.5549 ± 0.0010 μ sec.]

- (1) Connect the frequency counter to IC3001-PIN61.
- (2) Connect the short wire between IC3001-PIN24 and Vcc(5V).
- (3) Short the leads of capacitor C3026 once in order to re-set IC3001.
- (4) Disconnect the short wire between IC3001-PIN24 and Vcc then connect it again.
- (5) Adjust C3025 trimmer capacitor so that the output from IC3001-PIN61 falls within 1024.008 ± 0.001 Hz (976.5549 ± 0.0010 μ sec.) range.

3.6 ON SCREEN CIRCUIT

Note: • Set the VCR to the mode A by the remote controller.

3.6.1 Character position

Signal	• No signal
Mode	• EE
Equipment	• TV-monitor
Adjustment tool	• Presetting unit [PTU94008] • Digit-key remote controller
Specification	• Character centre

Note: • Use only the "H" button, depressing other buttons during adjustment may cause adjustment errors.

- (1) Press the MENU button and display the on screen character.
- (2) Observe the TV-monitor and centre position of character by pressing the "H" button of the presetting unit.

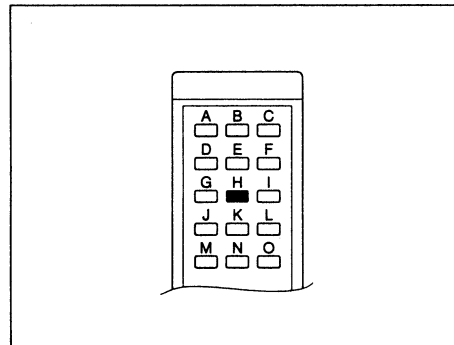


Fig. 3-6-1 Presetting unit

SECTION 4 CHARTS AND DIAGRAMS

NOTES OF SCHEMATIC DIAGRAM

Safety precautions
The Components identified by the symbol $\triangle$ are critical for safety. For continued safety, replace safety critical components only with manufacturer's recommended parts.

1. Units of components on the schematic diagram

Unless otherwise specified.

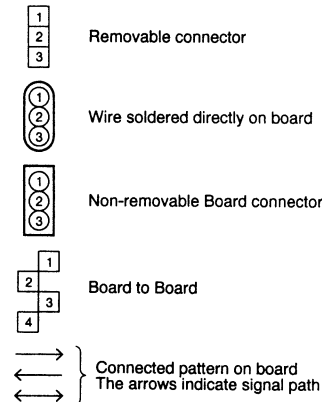
- 1) All resistance values are in ohm, 1/6 W, 1/8 W (refer to parts list).
Chip resistors are 1/16 W.
K: K Ω (1000 Ω), M: M Ω (1000K Ω)
- 2) All capacitance values are in μ F, (P: PF).
- 3) All inductance values are in μ H, (m: mH).
- 4) All diodes are 1SS133, MA165 or 1N4148M (refer to parts list).

2. Indications of control voltage

AUX : Active at high

AUX or AUX(L) : Active at low

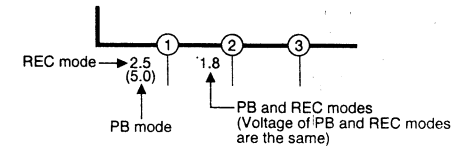
3. Interpreting Connector indications



4. Voltage measurement

- 1) Video circuits
REC : Colour bar signal in SP mode, normal VHS mode
PB : Alignment tape, colour bar SP mode, normal VHS mode
— : Unmeasurable or unnecessary to measure
- 2) Audio circuits
REC : 1KHz, -8 dBs sine wave signal in SP mode, Normal VHS mode
PB : REC then playback it
- 3) Movie Camera circuits
Measured using a correctly illuminated gray scale or colour bar test charts in the E-E mode

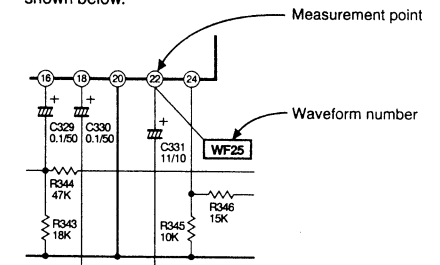
- 4) Indication on schematic diagram
Voltage Indications for REC and PB mode on the schematic diagram are as shown below.



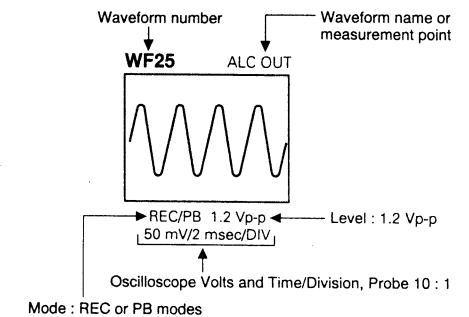
Note: If the voltages are not indicated on the schematic diagram, refer to the voltage charts.

5. Waveform measurement

- 1) Video circuits
REC : Colour bar signal in SP mode, normal VHS mode
PB : Alignment tape, colour bar SP mode, normal VHS mode
- 2) Audio circuits
REC : 1KHz, -8 dBs sine wave signal in SP mode, normal VHS mode
PB : REC then playback it
- 3) Movie Camera circuits
Measured using a correctly illuminated gray scale or colour bar test charts in the E-E mode
- 4) Indication on schematic diagram
Waveform indications on the schematic diagram are as shown below.



5) Waveform indications



6. Signal path Symbols

The arrows indicate the signal path as follows.

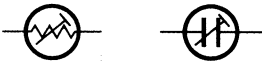
- Playback signal path
- Playback and recording signal path
- Recording signal path (including E-E signal path)
- Capstan servo path
- Drum servo path

(Example)

- R-Y Playback R-Y signal path
- Y Recording Y signal path

7. Indication of the parts for adjustments

The parts for the adjustments are surrounded with the circle as shown below.



8. Indication of the parts not mounted on the circuit board

"OPEN" is indicated by the parts not mounted on the circuit board.



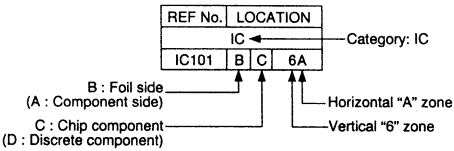
CIRCUIT BOARD NOTES

1. Foil and Component sides

- 1) Foil side (B side) :
Parts on the foil side seen from foil face (pattern face) are indicated.
- 2) Component side (A side) :
Parts on the component side seen from component face (parts face) indicated.

2. Parts location guides

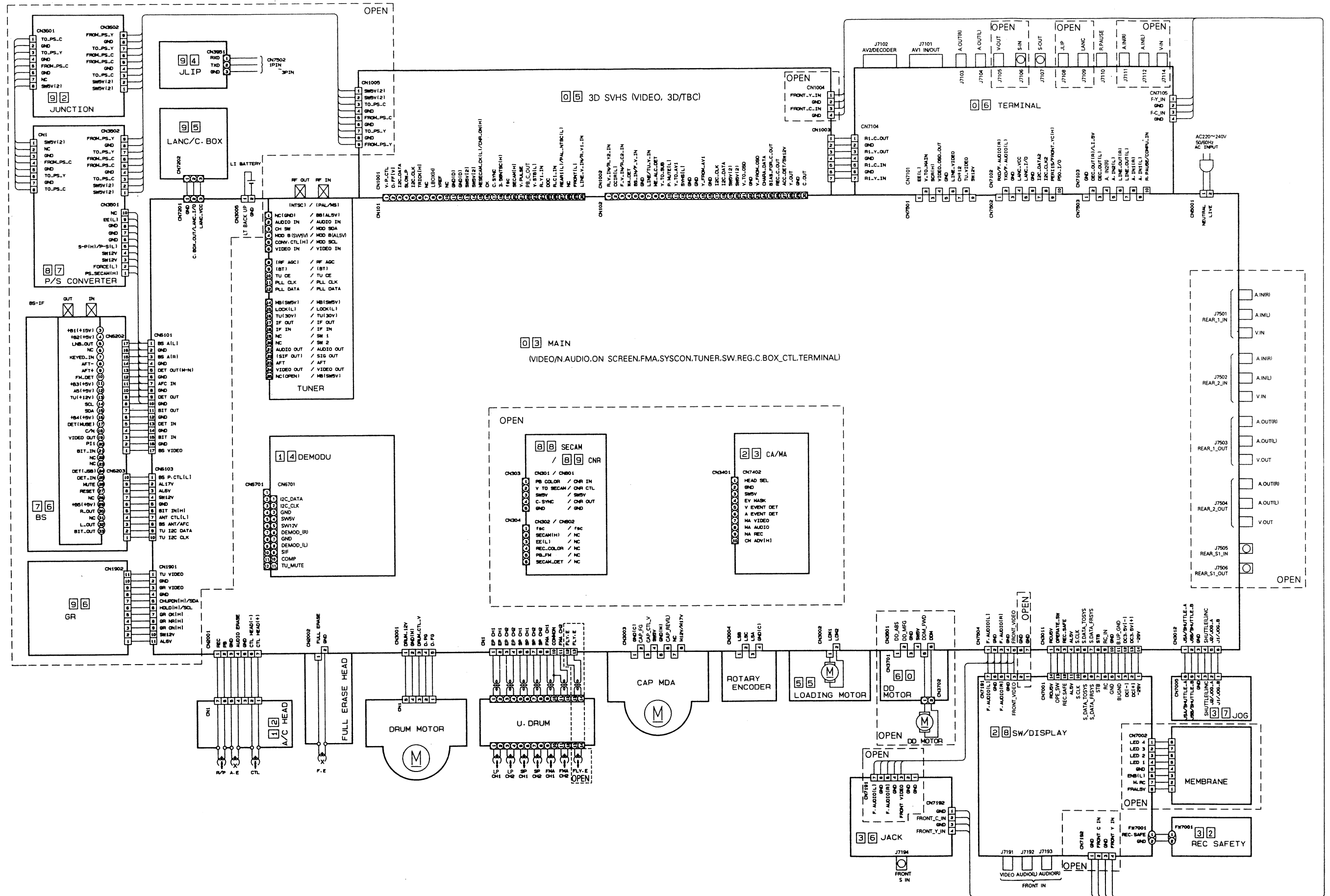
Parts location are indicated by guide scale on the circuit board.



Note:

For general information in service manual, please refer to the Service Manual of GENERAL INFORMATION Edition 4 No. 82054D (January 1994).

4.1 BOARD INTERCONNECTIONS



5 5	LOADING MOTOR
3 7	JOB
3 6	JACK
3 2	REC SAFETY
2 8	SW/DISPLAY
1 4	DEMODO
1 2	A/C HEAD
0 6	TERMINAL
0 5	3D SVHS
0 3	MAIN
NO	NAME

5



3

B

C

D 4-5

4-6

F

E

2

11

5



3

2

1

A

B

C

D

4-7

4-8

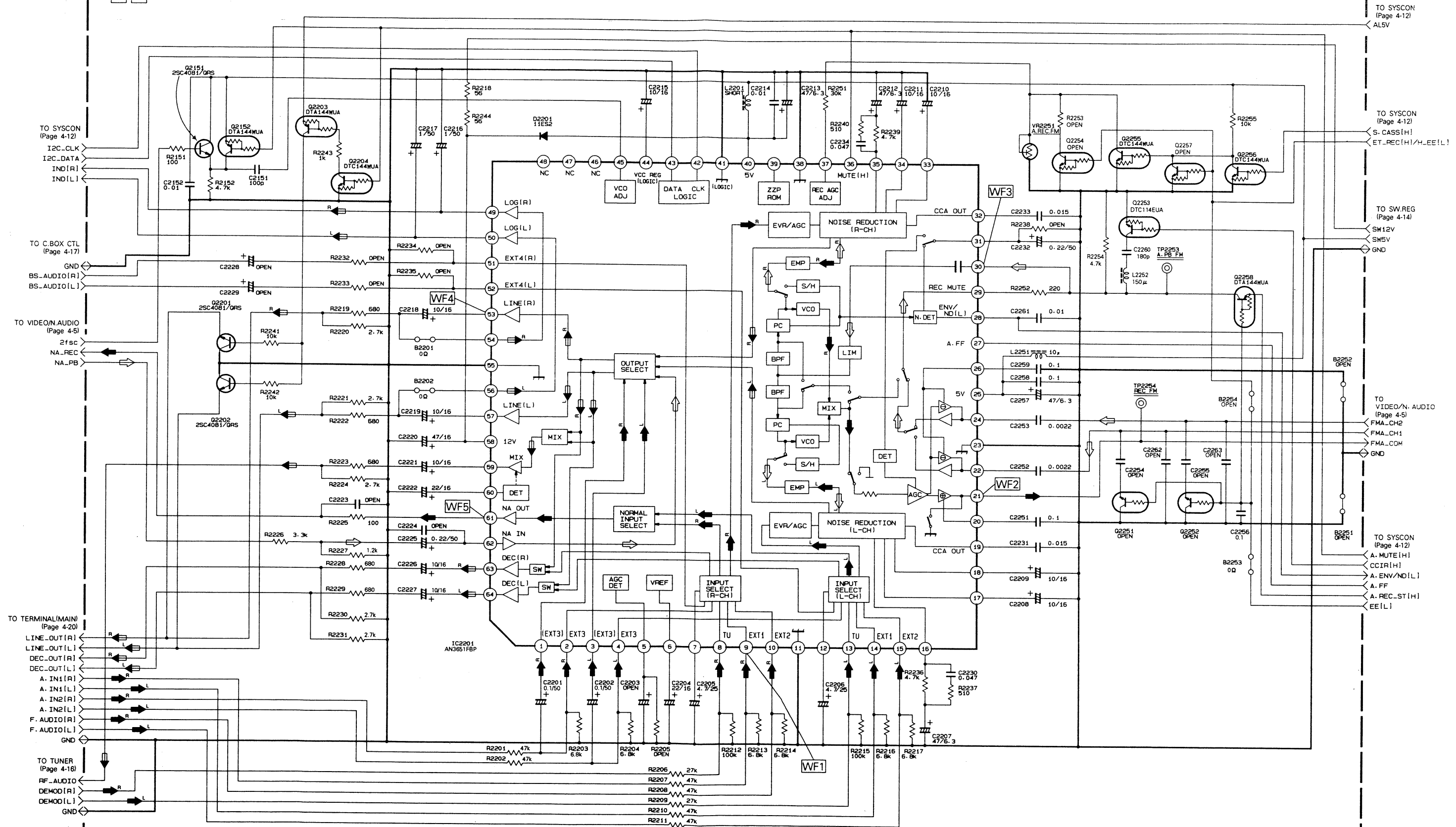
E

F

G

H

03 MAIN(FMA)



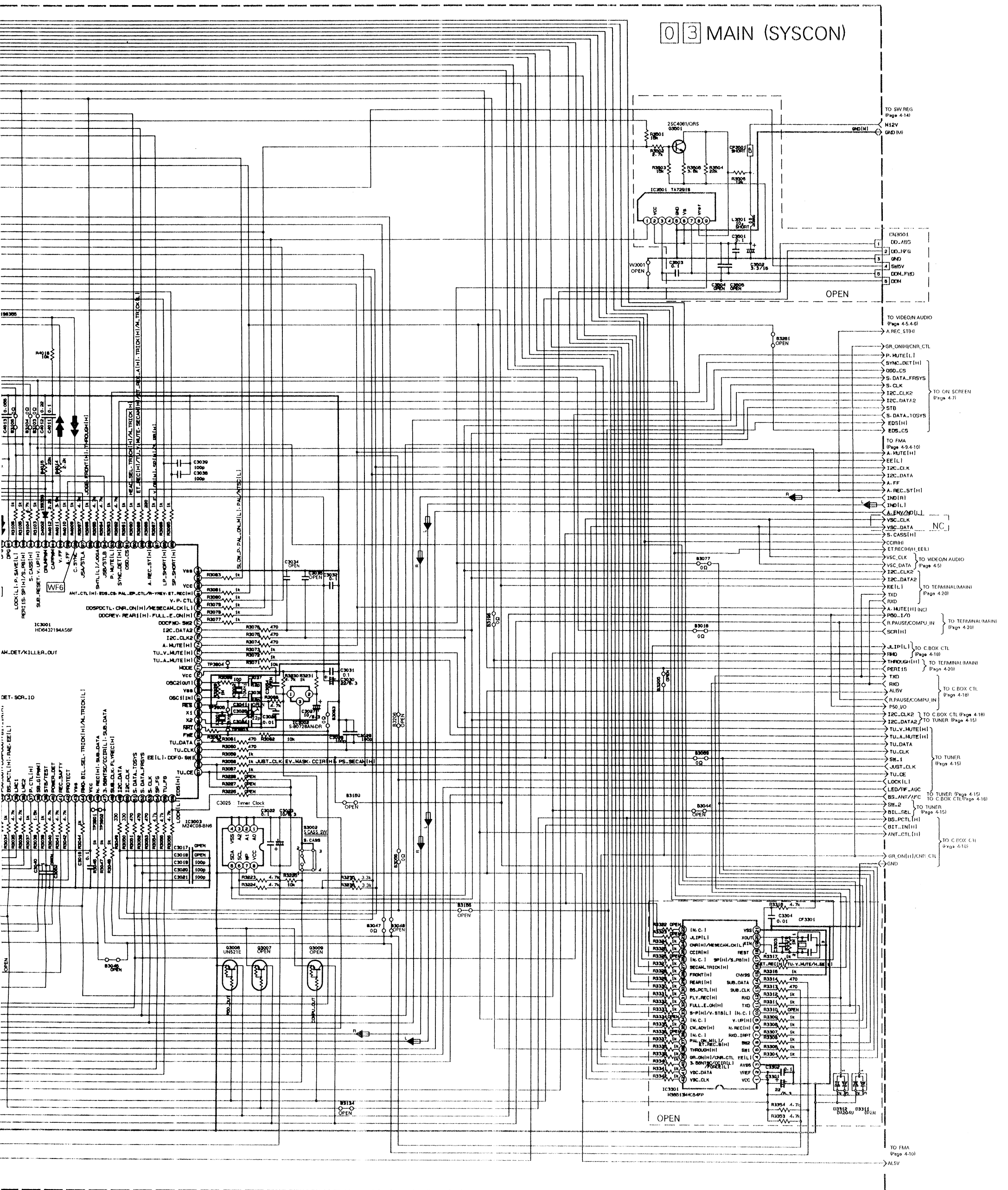
NOTE: For FMA waveforms, please refer to page 4-21.

1 |

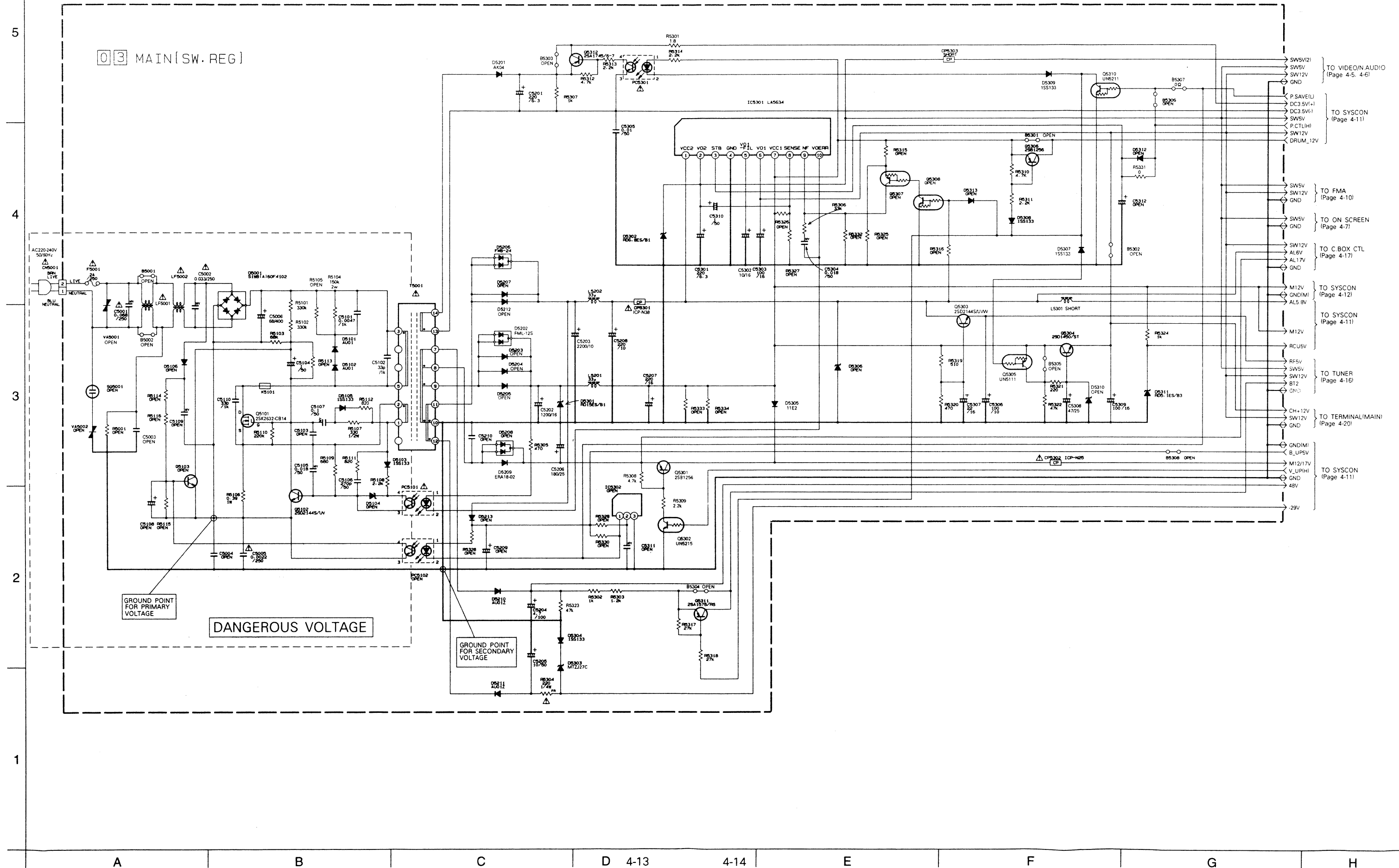


2. The SYSTEM CONTROL circuit of this model has an automatic recognition about the ON/OFF control of the

03 MAIN (SYSCON)



4.6 SWITCHING REGULATOR SCHEMATIC DIAGRAM



4.7 TUNER SCHEMATIC DIAGRAM

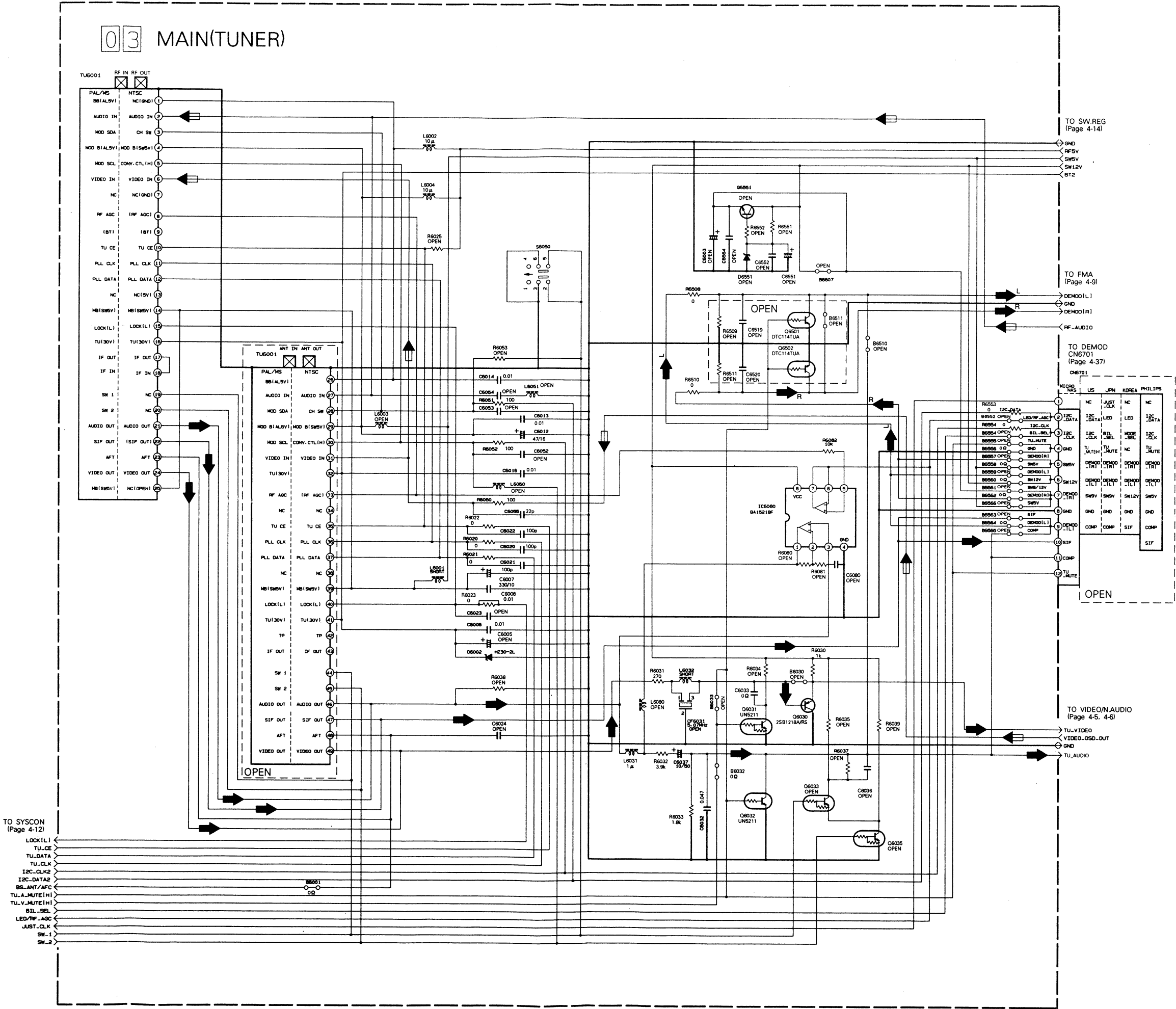
5

4

3

2

1



A

B

C

D

4-15

4-16

E

F

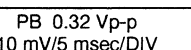
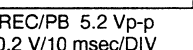
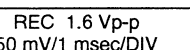
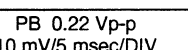
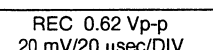
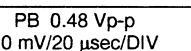
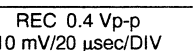
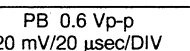
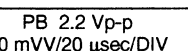
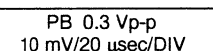
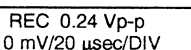
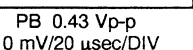
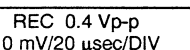
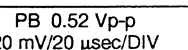
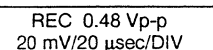
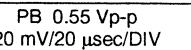
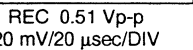
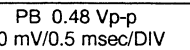
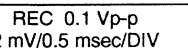
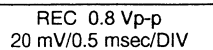
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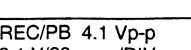
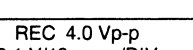
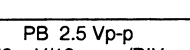
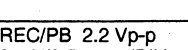
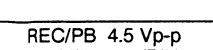
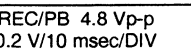
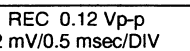
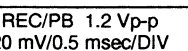
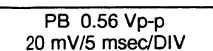
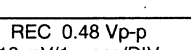
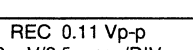
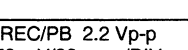
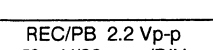
4-19



— VIDEO/N.AUDIO —

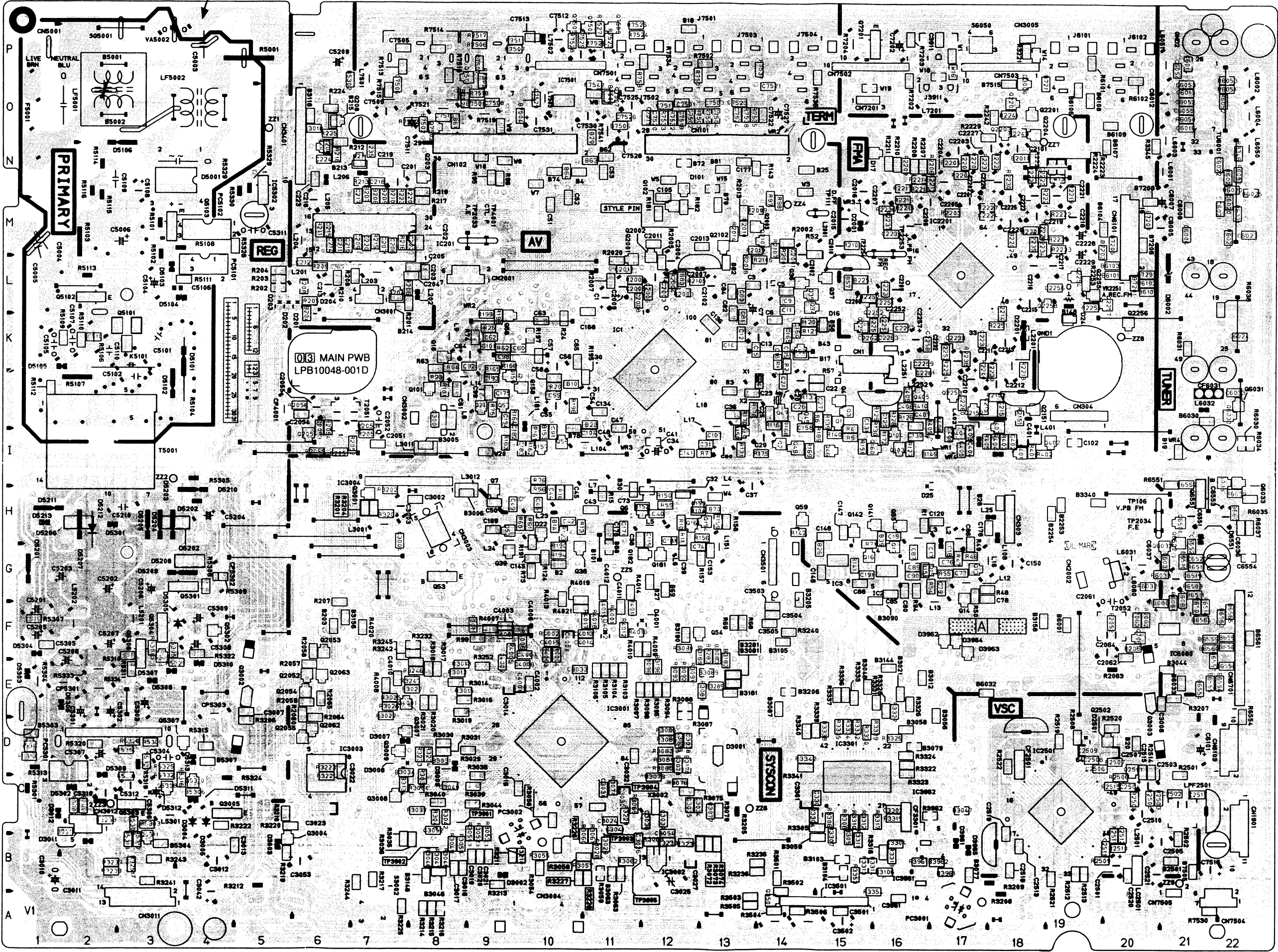


IC201-21

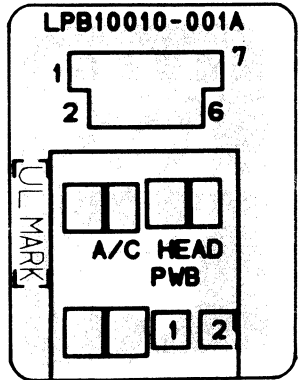


REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION
CAPACITOR													
C2053	11	C2054	11	C2055	11	C2056	11	C2057	11	C2058	11	C2059	11
C2060	11	C2061	11	C2062	11	C2063	11	C2064	11	C2065	11	C2066	11
C2067	11	C2068	11	C2069	11	C2070	11	C2071	11	C2072	11	C2073	11
C2074	11	C2075	11	C2076	11	C2077	11	C2078	11	C2079	11	C2080	11
C2081	11	C2082	11	C2083	11	C2084	11	C2085	11	C2086	11	C2087	11
C2088	11	C2089	11	C2090	11	C2091	11	C2092	11	C2093	11	C2094	11
C2095	11	C2096	11	C2097	11	C2098	11	C2099	11	C2100	11	C2101	11
C2102	11	C2103	11	C2104	11	C2105	11	C2106	11	C2107	11	C2108	11
C2109	11	C2110	11	C2111	11	C2112	11	C2113	11	C2114	11	C2115	11
C2116	11	C2117	11	C2118	11	C2119	11	C2120	11	C2121	11	C2122	11
C2123	11	C2124	11	C2125	11	C2126	11	C2127	11	C2128	11	C2129	11
C2130	11	C2131	11	C2132	11	C2133	11	C2134	11	C2135	11	C2136	11
C2137	11	C2138	11	C2139	11	C2140	11	C2141	11	C2142	11	C2143	11
C2144	11	C2145	11	C2146	11	C2147	11	C2148	11	C2149	11	C2150	11
C2151	11	C2152	11	C2153	11	C2154	11	C2155	11	C2156	11	C2157	11
C2158	11	C2159	11	C2160	11	C2161	11	C2162	11	C2163	11	C2164	11
C2165	11	C2166	11	C2167	11	C2168	11	C2169	11	C2170	11	C2171	11
C2172	11	C2173	11	C2174	11	C2175	11	C2176	11	C2177	11	C2178	11
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C2186	11	C2187	11	C2188	11	C2189	11	C2190	11	C2191	11	C2192	11
C2193	11	C2194	11	C2195	11	C2196	11	C2197	11	C2198	11	C2199	11
C2200	11	C2201	11	C2202	11	C2203	11	C2204	11	C2205	11	C2206	11
C2207	11	C2208	11	C2209	11	C2210	11	C2211	11	C2212	11	C2213	11
C2214	11	C2215	11	C2216	11	C2217	11	C2218	11	C2219	11	C2220	11
C2221	11	C2222	11	C2223	11	C2224	11	C2225	11	C2226	11	C2227	11
C2228	11	C2229	11	C2230	11	C2231	11	C2232	11	C2233	11	C2234	11
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C2249	11	C2250	11	C2251	11	C2252	11	C2253	11	C2254	11	C2255	11
C2256	11	C2257	11	C2258	11	C2259	11	C2260	11	C2261	11	C2262	11
C2263	11	C2264	11	C2265	11	C2266	11	C2267	11	C2268	11	C2269	11
C2270	11	C2271	11	C2272	11	C2273	11	C2274	11	C2275	11	C2276	11
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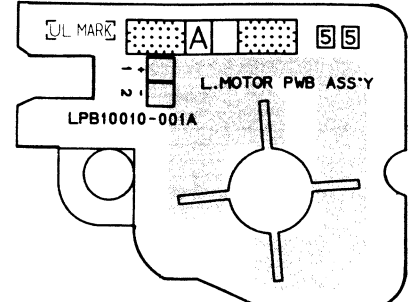
DANGEROUS VOLTAGE



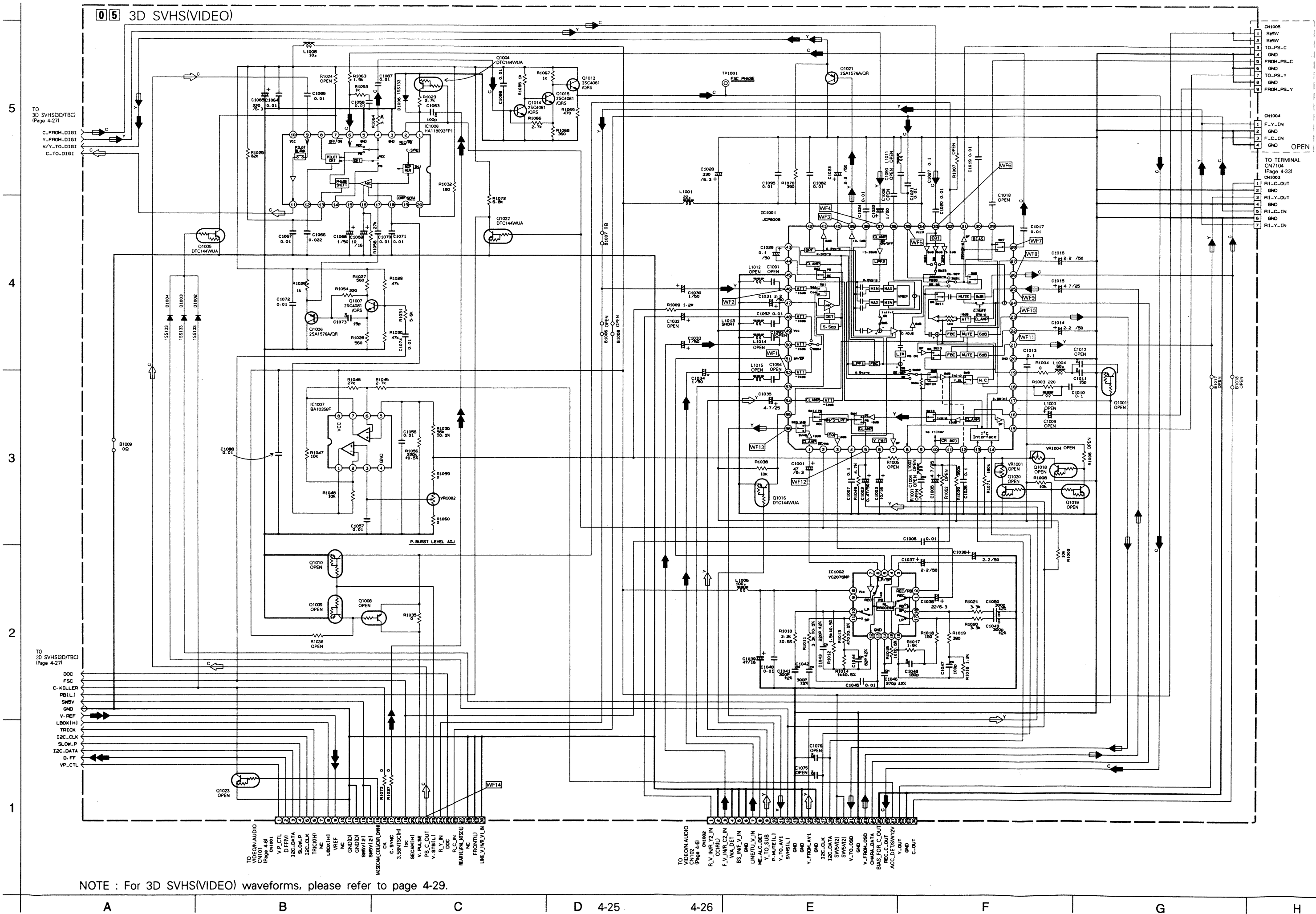
— A/C HEAD —



— LOADING MOTOR —



4.11 3D SVHS(VIDEO) SCHEMATIC DIAGRAM



NOTE : For 3D SVHS(VIDEO) waveforms, please refer to page 4-29.

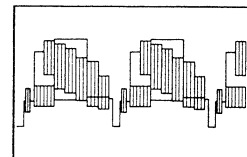
4-27



WAVEFORMS

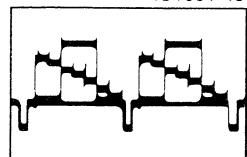
— 3D SVHS(VIDEO) —

WF1 IC1001-52



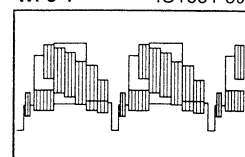
REC 0.76 Vp-p
20 mV/20 μsec/DIV

WF2 IC1001-46



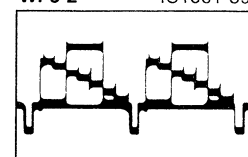
REC 1.0 Vp-p
20 mV/20 μsec/DIV

WF3-1 IC1001-39



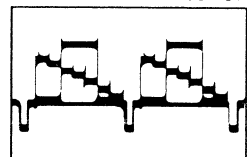
REC 1.8 Vp-p
50 mV/20 μsec/DIV

WF3-2 IC1001-39



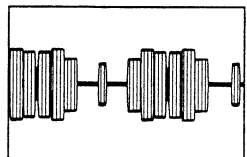
REC/PB 1.7 Vp-p
50 mV/20 μsec/DIV

WF4 IC1001-37



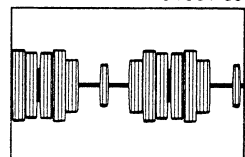
REC/PB 0.8 Vp-p
20 mV/20 μsec/DIV

WF5 IC1001-35



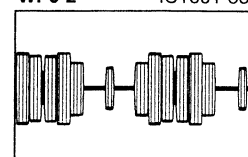
REC 0.65 Vp-p
20 mV/20 μsec/DIV

WF6-1 IC1001-33



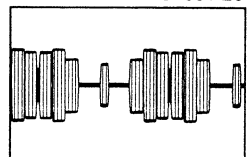
REC 0.35 Vp-p
10 mV/20 μsec/DIV

WF6-2 IC1001-33



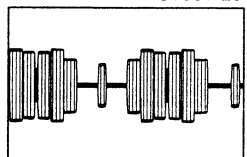
PB 0.5 Vp-p
10 mV/20 μsec/DIV

WF7 IC1001-28



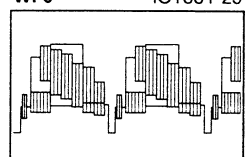
REC 0.7 Vp-p
20 mV/20 μsec/DIV

WF8 IC1001-26



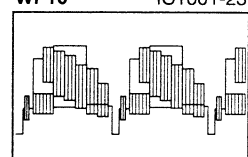
REC/PB 1.5 Vp-p
50 mV/20 μsec/DIV

WF9 IC1001-25



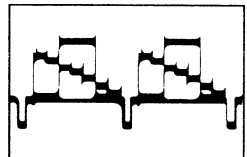
REC/PB 2.2 Vp-p
50 mV/20 μsec/DIV

WF10 IC1001-23



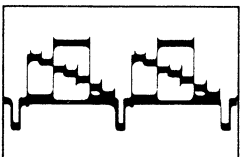
REC/PB 2.2 Vp-p
50 mV/20 μsec/DIV

WF11 IC1001-21



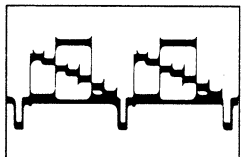
REC/PB 2.2 Vp-p
50 mV/20 μsec/DIV

WF12 IC1001-5



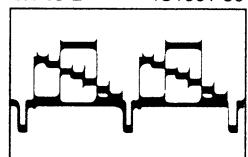
PB 0.56 Vp-p
20 mV/20 μsec/DIV

WF13-1 IC1001-56



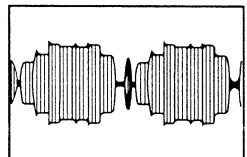
REC 0.52 Vp-p
20 mV/20 μsec/DIV

WF13-2 IC1001-56



PB 0.56 Vp-p
20 mV/20 μsec/DIV

WF14 CN1001-22



PB 0.62 Vp-p
20 mV/20 μsec/DIV

COMPONENT PARTS LOCATION GUIDE <3D SVHS>

REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION
CAPACITOR				IC				COIL				RESISTOR	
C1001	A D 10B	C1064	B C 7C	C1431	B C 3D	D1401	A D 6B	Q1404	A C 5D	R1048	A C 8D	R1434	B C 3D
C1002	A D 10B	C1065	A D 7B	C1432	A D 3E	D1402	A D 3E	Q1405	B C 6E	R1049	B C 10B	R1435	B C 4D
C1003	A D 10C	C1066	B C 7C	C1433	B C 4D					Q1406	B C 4D	R1052	B C 10C
C1004	B C 11C	C1067	B C 7C	C1434	A D 4B	IC1001	B C 10D	Q1407	A C 5E	R1053	B C 7C	R1437	B C 5D
C1005	A D 11C	C1068	A D 8D	C1435	A D 5E	IC1002	A C 12C	Q1408	A C 4D	R1054	A C 7D	R1438	B C 5B
C1006	B C 11C	C1069	A D 8D	C1436	B C 4D	IC1006	A C 7C	Q1409	A C 6B	R1055	B C 8E	R1439	B C 5D
C1007	A C 10C	C1070	B C 7D	C1437	B C 5D	IC1007	A C 8D	Q1410	A C 5B	R1056	B C 8D	R1440	B C 5D
C1008	A C 9D	C1071	A C 8D	C1438	B C 4D	IC1401	A C 4D	Q1411	A C 5C	R1058	B C 8D	R1442	A C 5D
C1009	A D 11C	C1072	B C 7D	C1439	B C 4D	IC1402	A C 2D	Q1412	B C 5B	R1059	B C 8E	R1443	A C 5C
C1010	A C 10D	C1073	A C 7D	C1440	B C 4D	IC1403	A C 2C	Q1413	A C 6D	R1060	B C 8E	R1444	A C 6B
C1011	B C 11D	C1074	B C 7D	C1441	B C 4D					Q1414	B C 4D	R1063	A C 7B
C1012	A C 11D	C1075	A C 10A	C1442	A C 5D	L1001	A D 9B	Q1416	B C 5D	R1064	B C 7C	R1445	A C 5B
C1013	A C 9C	C1076	A C 10A	C1443	B C 5C	L1002	A D 11B	Q1417	A C 4D	R1065	A C 7E	R1446	A C 5C
C1014	A D 11D	C1082	B C 9D	C1444	A D 5C	L1003	A D 11D	Q1418	A C 4E	R1066	A C 7D	R1448	A C 4C
C1015	A D 12A	C1086	B C 7C	C1445	B C 4C	L1004	A D 11D					R1067	A C 7E
C1016	A D 10D	C1087	B C 7C	C1446	A C 4C	L1006	A D 12D	R1001	B C 11C	R1068	B C 7D	R1450	B C 6C
C1017	B C 10E	C1088	B C 8D	C1447	A C 4C	L1008	A D 7B	R1002	A C 10C	R1069	B C 7D	R1451	B C 6C
C1018	B C 10E	C1089	A C 7E	C1448	A C 4C	L1011	A D 9E	R1003	A C 10D	R1070	A C 10D	R1452	B C 6C
C1019	B C 10E	C1090	B C 9D	C1449	A D 2B	L1012	A D 8C	R1004	B C 11D	R1071	B C 11B	R1453	B C 5B
C1020	B C 9E	C1091	B C 8C	C1450	B C 2D	L1013	A D 8B	R1005	B C 10C	R1072	A C 7D	R1454	B C 5B
C1021	B C 9E	C1092	B C 8B	C1451	B C 1E	L1014	A D 8A	R1006	A C 10B	R1073	B C 7A	R1455	B C 5B
C1022	A D 9D	C1093	B C 8B	C1452	B C 2C	L1015	A D 9A	R1007	B C 10E	R1401	B C 6B	R1456	B C 5B
C1023	A D 9D	C1094	B C 9B	C1453	B C 2B	L1401	A D 6D	R1008	A C 10B	R1402	B C 6B	R1457	B C 5B
C1024	A C 9C	C1095	A C 10D	C1454	A C 6B	L1402	A D 6C	R1009	A C 9C	R1403	B C 6D	R1458	B C 4B
C1026	B C 10B	C1401	A D 6B	C1455	B C 5B	L1404	A D 5E	R1010	B C 12C	R1404	A C 6D	R1459	B C 4B
C1027	A C 10D	C1402	B C 6B	C1456	B C 5B	L1405	A D 5E	R1011	B C 12C	R1405	B C 6D	R1460	A C 5B
C1028	A D 9C	C1403	B C 6D	C1457	B C 5B	L1406	A D 4E	R1012	A C 12C	R1406	A C 6D	R1461	A C 6D
C1029	A D 9D	C1404	B C 6D	C1458	A C 5C	L1407	A D 4B	R1013	A C 13C	R1407	A C 6D	R1462	B C 4D
C1030	A D 8C	C1405	A C 6D	C1459	A C 6E	L1408	A D 5B	R1014	A C 13C	R1408	B C 5D	R1463	B C 6B
C1031	A D 9C	C1406	B C 6D	C1460	A C 6E	L1409	A D 5B	R1015	A C 13C	R1409	A C 6D	R1464	B C 5C
C1032	A D 9B	C1407	A C 5D	C1461	A C 6D	L1410	A D 3B	R1016	A C 12B	R1410	A C 5D	R1465	A C 6E
C1033	A D 9B	C1408	A C 5D	C1462	A C 6C	L1411	A D 6C	R1017	A C 13B	R1411	A C 5D	R1467	A C 6E
C1034	A D 9B	C1409	A C 6D	C1463	A C 6C	TRANSISTOR				R1018	A C 13B	R1412	B C 5D
C1035	A D 9B	C1410	A D 6D	C1464	A C 6C	Q1001	A C 11D	R1019	A C 12B	R1413	A C 5D	R1470	A C 4E
C1036	A D 12B	C1411	A D 5D	C1465	A C 6C	Q1004	A C 8B	R1020	B C 13B	R1414	B C 6E	R1471	A C 4E
C1037	A D 12B	C1412	A C 5D	C1466	B C 6A	Q1005	B C 7B	R1021	B C 12B	R1415	B C 6E	R1472	A C 4E
C1038	A D 12C	C1413	A C 6E	C1467	A C 5B	Q1006	B C 7D	R1023	A C 8C	R1416	B C 5D	OTHER	
C1039	A D 12D	C1414	B C 6E	C1468	A C 5B	Q1007	A C 7D	R1024	B C 7C	R1417	B C 4D	LC1401	A D 6B
C1040	B C 12D	C1415	B C 5E	C1469	A C 5B	Q1008	A C 8E	R1025	A C 7D	R1418	B C 4D	LC1402	A D 6C
C1041	B C 12D	C1416	B C 5E	C1470	A C 5B	Q1009	A C 8E	R1026	B C 7D	R1419	A C 4D	RA1401	A C 3C
C1042	B C 13C	C1417	B C 5E	C1471	A C 5B	Q1010	B C 8E	R1027	A C 7D	R1420	A C 5E	RA1402	A C 3C
C1043	A C 12C	C1418	B C 5E	C1472	A C 5B	Q1012	B C 7E	R1028	A C 7D	R1421	A C 4E	RA1403	A C 3D
C1044	A C 13C	C1419	B C 4E	C1473	A C 4B	Q1014	B C 7D	R1029	A C 7D	R1422	A C 4E	RA1404	A C 3D
C1045	B C 12C	C1420	A C 5D	CONNECTOR				R1030	A C 7D	R1423	A C 4D	RA1405	A C 1E
C1046	A C 13C	C1421	A C 5E	CN1001	A D 6A	Q1015	A C 7E	R1031	B C 7D	R1424	A C 5B	RA1406	A C 2E
C1047	A C 12B	C1422	A C 4E	CN1002	A D 9A	Q1016	A C 10C	R1032	B C 8C	R1425	B C 6B	RA1407	A C 2B
C1048	A C 13B	C1423	A C 4E	CN1003	A D 12E	Q1018	B C 11B	R1033	B C 8C	R1426	A C 3B	RA1408	A C 1B
C1049	B C 13B	C1424	A C 5D	CN1004	A D 7E	Q1019	B C 11B	R1035	B C 8E	R1427	B C 3C	TP1001	A D 7E
C1050	B C 12B	C1425	A D 3B	CN1005	A D 11E	Q1020	B C 10B	R1036	A C 9E	R1428	B C 3C	VR1001	A D 10B
C1056	B C 8D	C1426	B C 4C	DIODE				R1037	A C 7A	R1429	B C 3C	VR1002	A D 8E
C1057	B C 8D	C1427	B C 4C	D1002	A D 7B	Q1022	A C 7E	R1038	A C 9C	R1430	B C 3E	VR1004	A D 11B
C1058	B C 7C	C1428	B C 3C	D1003	A D 7B	Q1401	A D 6B	R1039	A C 9C	R1431	B C 3D	VR1401	A D 5C
C1063	B C 7C	C1429	B C 3C	D1004	A D 8B	Q1402	B C 6D	R1045	A C 8D	R1432	B C 3D		
		C1430	B C 3D	D1006	A D 8C	Q1403	A C 6D	R1046	A C 8D	R1433	B C 3D		

— FOIL SIDE (B) —



5



3

2

1

A

B

C

D 4-33

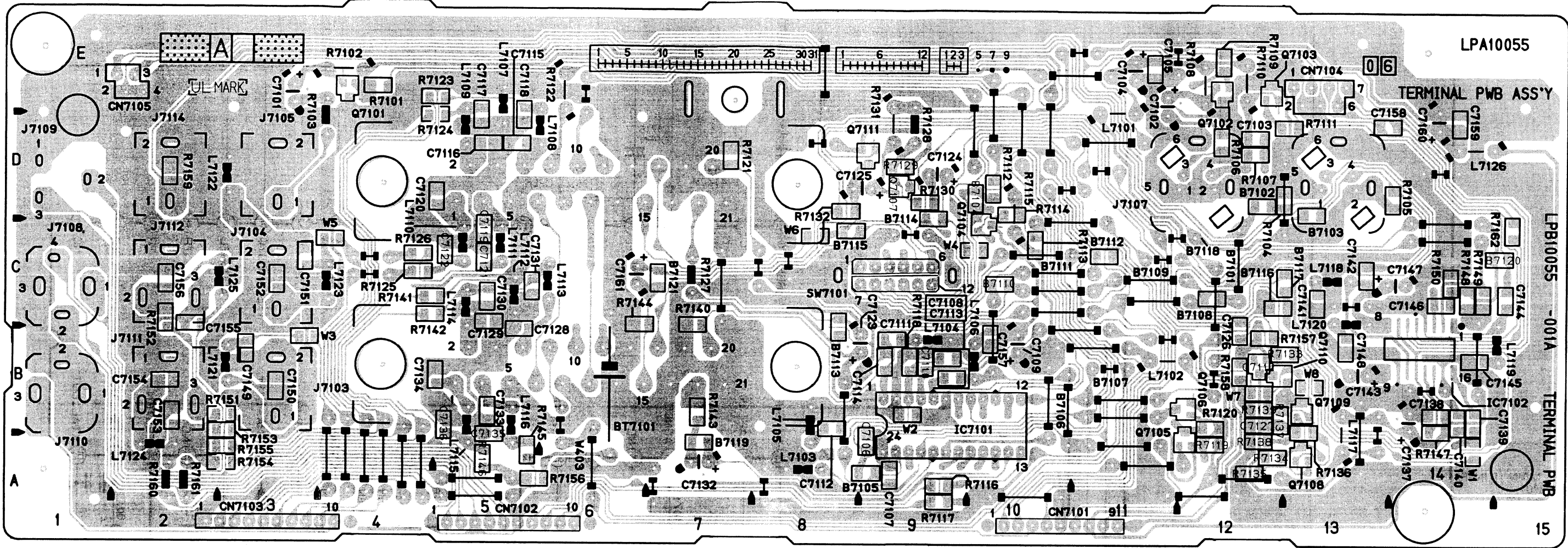
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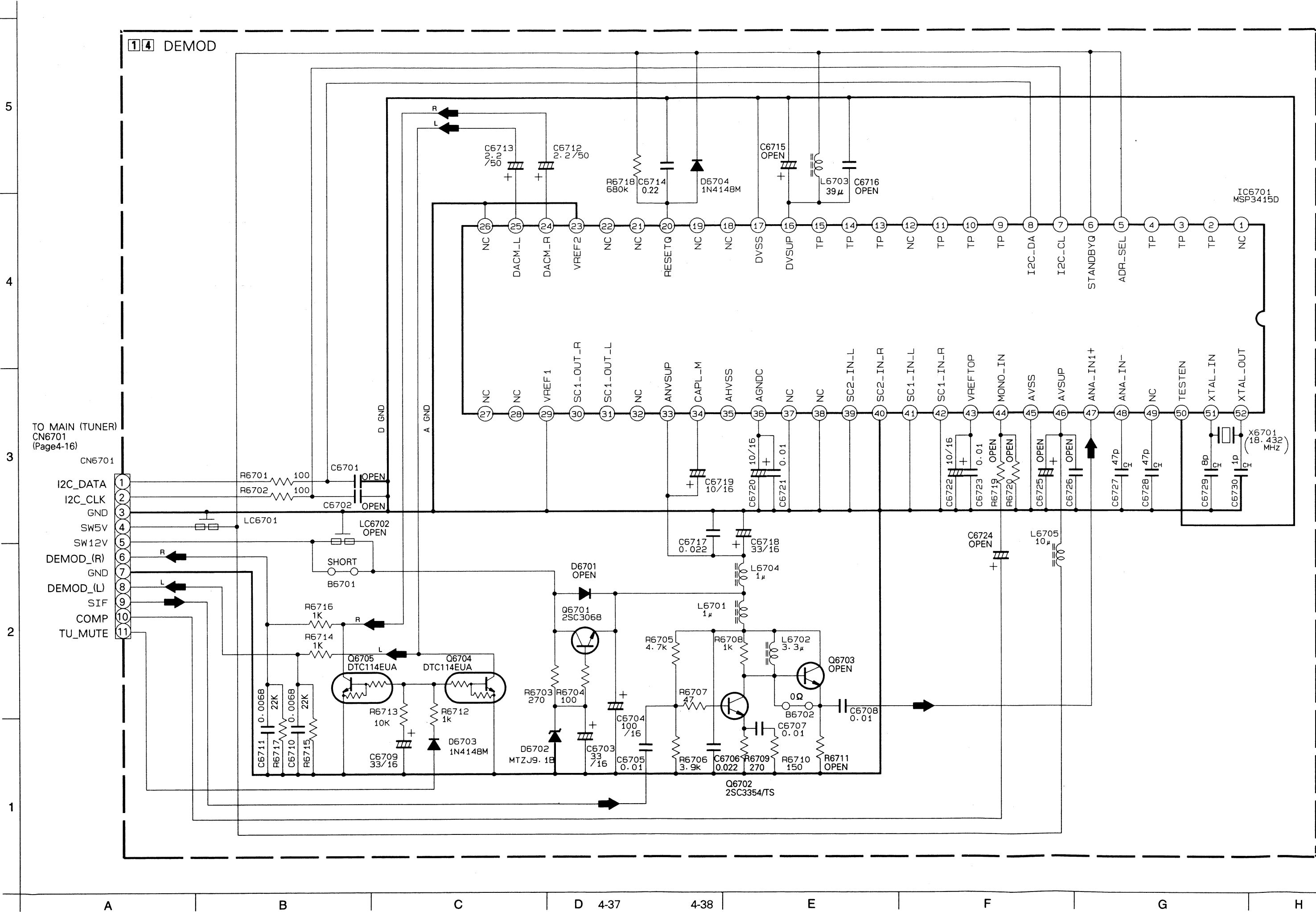
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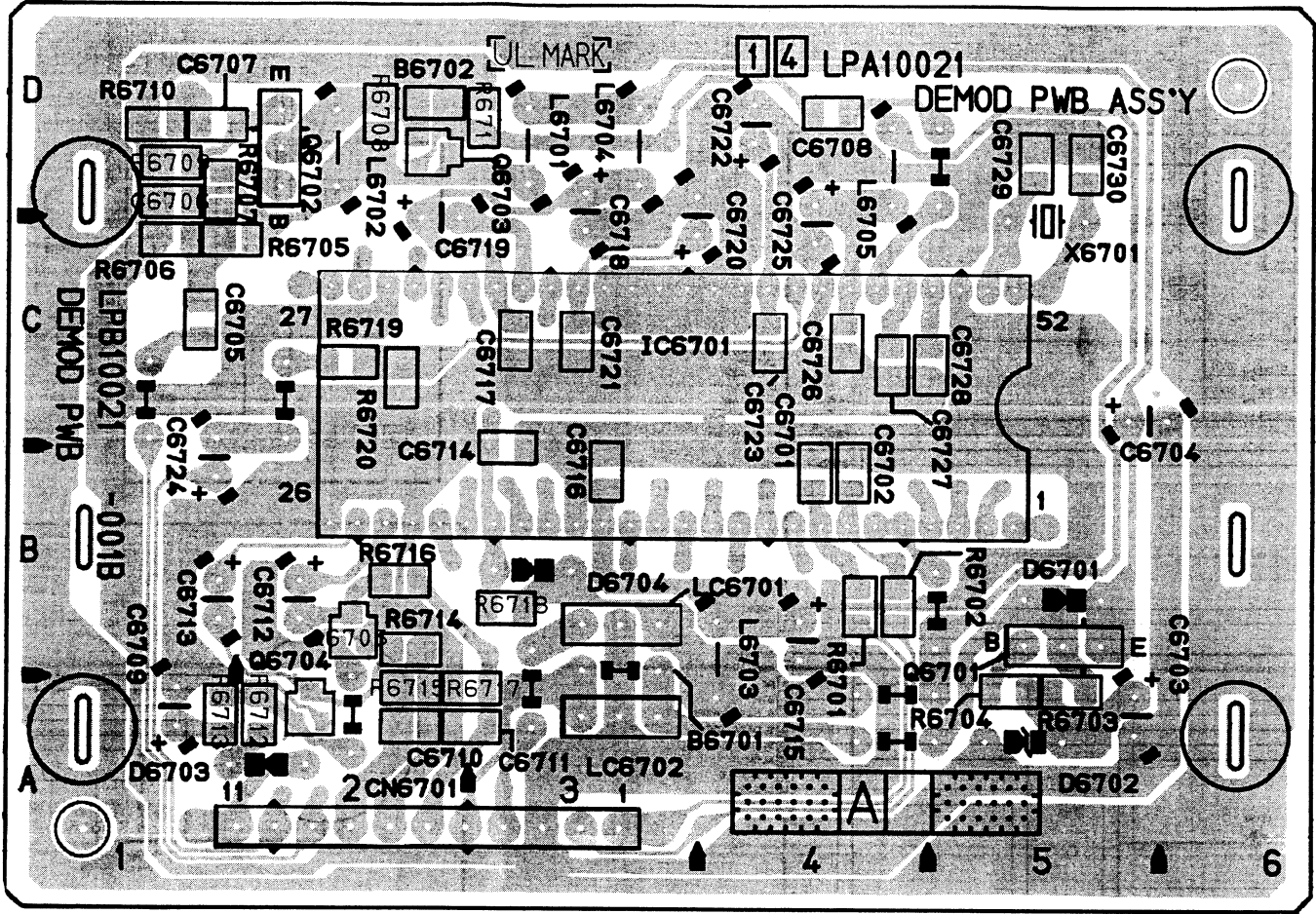


COMPONENT PARTS LOCATION GUIDE <TERMINAL>

REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION
CAPACITOR		C7128	B C 5C	C7156	B C 2C	J7111	A D 2B	L7125	A D 3C	R7112	B C 10D
C7101	A D 3E	C7129	B C 5C	C7157	B C 10B	J7112	A D 2C	L7126	A D 14D	R7113	B C 10C
C7102	A D 11E	C7130	B C 5C	C7158	B C 13D	J7114	A D 2D	TRANSISTOR		R7114	B C 10D
C7103	B C 12D	C7131	B C 5C	C7159	B C 14D	COIL		Q7101	B C 4E	R7115	A D 10C
C7104	A D 11E	C7132	A D 7A	C7160	A D 14D	L7101	A D 11E	Q7102	B C 12E	R7116	B C 9A
C7105	B C 11E	C7133	B C 5B	C7161	A D 6C	L7102	A D 12B	Q7103	B C 12E	R7117	B C 9A
C7106	B C 9A	C7134	B C 5B	CONNECTOR		L7103	A D 8A	Q7104	B C 10D	R7118	B C 9B
C7107	B C 9A	C7135	B C 5B	CN7101	A D 10A	L7104	A D 9B	Q7105	B C 12B	R7119	B C 12A
C7108	B C 9B	C7136	B C 5B	CN7102	A D 5A	L7105	A D 8A	Q7106	B C 12B	R7120	B C 12B
C7109	A D 10B	C7137	A D 14B	CN7103	A D 2A	L7106	A D 10B	Q7107	B C 9D	R7121	B C 7D
C7110	B C 9B	C7138	B C 14B	CN7104	A D 13E	L7107	A D 5E	Q7108	B C 13A	R7122	A D 6E
C7111	B C 9B	C7139	B C 14B	CN7105	A D 2E	L7108	A D 5D	Q7109	B C 13B	R7123	B C 5E
C7112	B C 8B	C7140	B C 14B	IC		L7109	A D 5D	Q7110	B C 12B	R7124	B C 5E
C7113	B C 9B	C7141	B C 13C	IC7101	A D 9B	L7110	A D 5C	Q7111	B C 9D	R7125	B C 4C
C7114	B C 9B	C7142	B C 13C	IC7102	B C 14B	L7111	A D 5C	Q7112	B C 12B	R7126	B C 4C
C7115	B C 5D	C7143	A D 13B	JACK		L7112	A D 5C	RESISTOR		R7127	A D 7C
C7116	B C 5D	C7144	B C 15C	J7101	A D 6D	L7113	A D 6C	R7101	B C 4E	R7128	A D 9E
C7117	B C 5E	C7145	B C 14B	J7102	A D 6B	L7114	A D 5C	R7102	A D 3E	R7129	B C 9D
C7118	B C 5E	C7146	B C 14C	J7103	A D 3B	L7115	A D 5B	R7103	A D 3E	R7130	B C 9D
C7119	B C 5C	C7147	A D 13C	J7104	A D 3C	L7116	A D 5B	R7104	B C 12D	R7131	A D 9D
C7120	B C 5D	C7148	B C 13B	J7105	A D 3D	L7117	A D 13A	R7105	B C 14D	R7132	B C 8D
C7121	B C 5C	C7149	B C 3B	J7106	A D 13D	L7118	A D 13C	R7106	B C 12D	R7133	B C 13B
C7122	B C 5C	C7150	B C 3B	J7107	A D 12D	L7119	A D 15B	R7107	B C 12D	R7134	B C 12A
C7123	A D 9B	C7151	B C 3C	J7108	A D 1C	L7120	A D 13C	R7108	A D 12E	R7135	B C 12A
C7124	A D 9D	C7152	B C 3C	J7109	A D 1D	L7121	A D 3B	R7109	B C 12E	R7136	B C 13B
C7125	A D 9D	C7153	B C 2B	J7110	A D 1B	L7122	A D 3D	R7110	A D 12E	R7137	B C 12B
C7126	B C 12C	C7154	B C 2B	OTHER		L7123	A D 4C	R7111	B C 13D	R7138	B C 12A
C7127	B C 12B	C7155	B C 2C	BT7101	A D 6B	L7124	A D 2A	SW7101	A D 9C	R7139	B C 12B

4.16 DEMODULATOR SCHEMATIC DIAGRAM

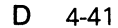




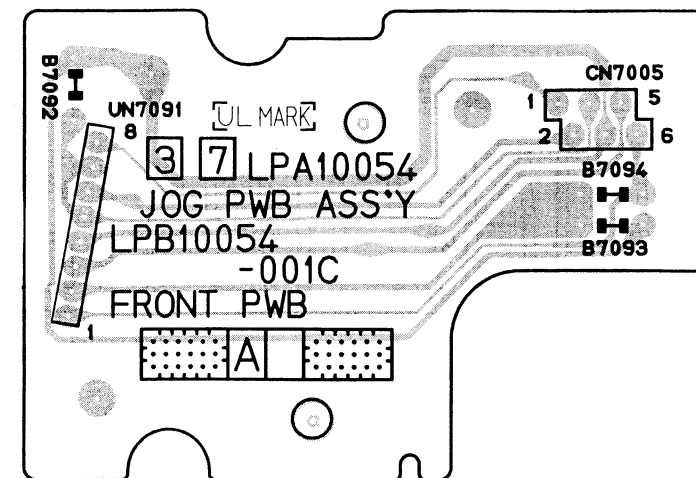
COMPONENT PARTS LOCATION GUIDE <DEMODULATOR>

REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION
CAPACITOR		C6717	B C 3C	DIODE		TRANSISTOR		R6710	B C 1D
C6701	B C 4B	C6718	A D 3D	D6701	A D 5B	Q6701	A D 5B	R6711	B C 3D
C6702	B C 4B	C6719	A D 2D	D6702	A D 5A	Q6702	A D 2D	R6712	B C 2A
C6703	A D 5A	C6720	A D 4C	D6703	A D 2A	Q6703	B C 2D	R6713	B C 2A
C6704	A D 5C	C6721	B C 3C	D6704	A D 3B	Q6704	B C 2A	R6714	B C 2B
C6705	B C 1C	C6722	A D 4D	IC		Q6705	B C 2B	R6715	B C 2A
C6706	B C 1D	C6723	B C 4C	RESISTOR				R6716	B C 2B
C6707	B C 1D	C6724	A D 1B	IC6701	A D 5B			R6717	B C 3A
C6708	B C 4D	C6725	A D 4D	COIL		R6701	B C 4B	R6718	B C 3B
C6709	A D 1A	C6726	B C 4C	L6701	A D 3D	R6702	B C 4B	R6719	B C 2C
C6710	B C 2A	C6727	B C 4C	L6702	A D 2D	R6703	B C 5A	R6720	B C 2C
C6711	B C 3A	C6728	B C 5C	L6703	A D 4A	R6704	B C 5A	OTHER	
C6712	A D 2B	C6729	B C 5D	L6704	A D 3D	R6705	B C 2C	LC6701	A D 3B
C6713	A D 1B	C6730	B C 5D	L6705	A D 4D	R6706	B C 1C	LC6702	A D 3A
C6714	B C 3C	CONNECTOR				R6707	B C 1D		
C6715	A D 4B	CN6701	A D 3A			R6708	B C 2D		
C6716	B C 3B					R6709	B C 1D		

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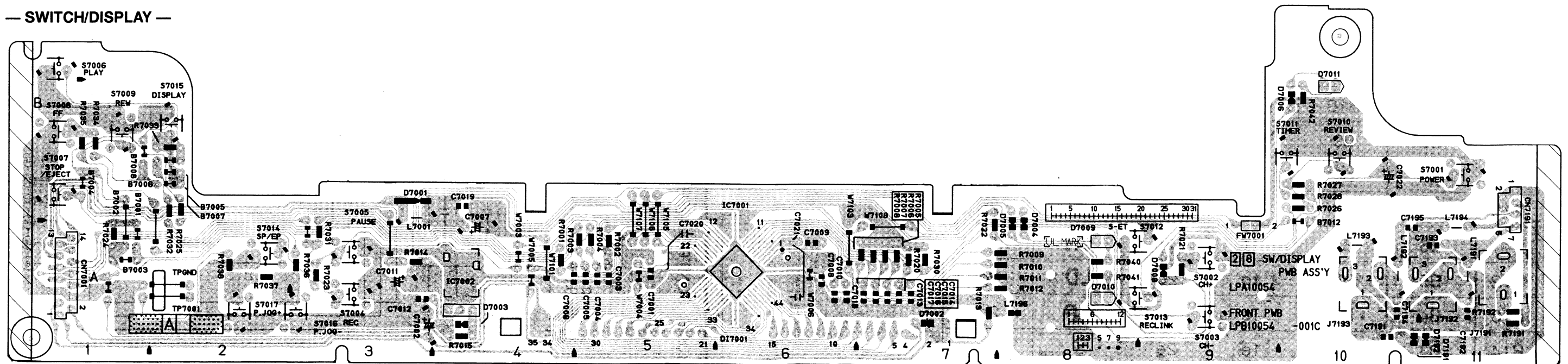


— JACK —



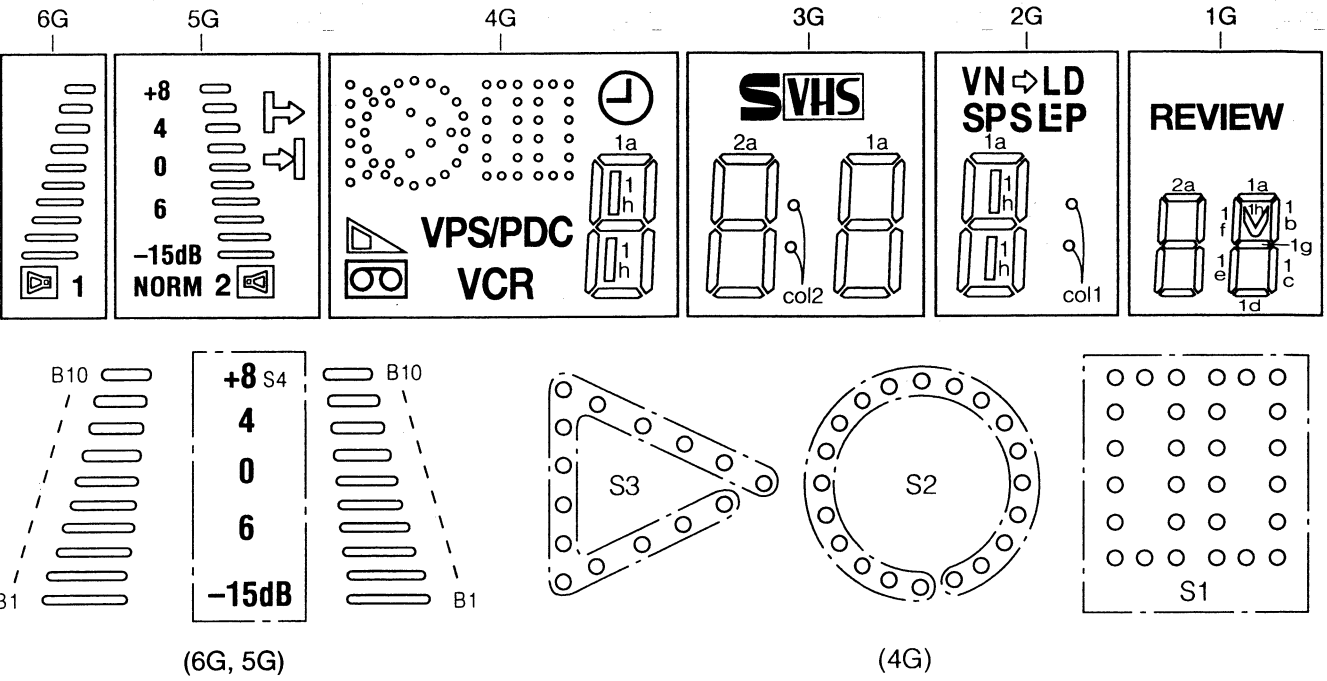
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CAPACITOR		C7021	A D 6A	D7011	A D 10B	R7003	A D 5A	R7027	A D 10B	S7004	A D 3A		
C7001	A D 5A	C7022	A D 10B	D7191	A D 10A	R7004	A D 5A	R7028	A D 10B	S7005	A D 3A		
C7002	A D 3A	C7191	A D 10A	D7192	A D 11A	R7005	A D 7A	R7030	A D 7A	S7006	A D 1C		
C7003	A D 5A	C7192	A D 11A	IC		R7006	A D 7A	R7031	A D 3B	S7007	A D 1B		
C7004	A D 5A	C7193	A D 11A	IC7001	B C 6A	R7007	A D 7A	R7032	A D 2A	S7008	A D 1B		
C7005	A D 5A	C7194	A D 10A	IC7002	A D 4A	R7008	A D 7A	R7033	A D 2B	S7009	A D 1B		
C7006	A D 4A	C7195	A D 11A	JACK		R7009	A D 7A	R7034	A D 1B	S7010	A D 10B		
C7007	A D 4A	CONECTOR		J7191	A D 11A	R7010	A D 7A	R7035	A D 1B	S7011	A D 10B		
C7008	A D 6A	CN7001	A D 1A	J7192	A D 11A	R7011	A D 7A	R7036	A D 3A	S7012	A D 8A		
C7009	A D 6A	CN7191	A D 11B	J7193	A D 10A	R7012	A D 7A	R7037	A D 2A	S7013	A D 8A		
C7010	A D 6A	DIODE		COIL		R7013	A D 7A	R7038	A D 2A	S7014	A D 2A		
C7011	A D 3A	D7001	A D 3B	L7001	A D 9C	R7014	A D 3A	R7040	A D 8A	S7015	A D 2B		
C7012	A D 3A	D7002	A D 7A	L7191	A D 11A	R7015	A D 4A	R7041	A D 8A	S7016	A D 3A		
C7013	A D 7A	D7003	A D 4A	L7192	A D 10A	R7020	A D 7A	R7042	A D 10B	S7017	A D 2A		
C7014	A D 7A	D7004	A D 8B	L7193	A D 10A	R7021	A D 9A	R7191	A D 11A	OTHER			
C7015	A D 7A	D7005	A D 8B	L7194	A D 11A	R7022	A D 7A	R7192	A D 11A	DI7001	A D 6A		
C7016	A D 7A	D7006	A D 10B	L7196	A D 8A	R7023	A D 3A	SWITCH		FW7001	A D 9B		
C7017	A D 7A	D7008	A D 9A	RESISTOR		R7024	A D 1A	S7001	A D 11B	TP7001	A D 1A		
C7018	A D 6A	D7009	A D 8A	R7001	A D 4A	R7025	A D 2A	S7002	A D 9A	TPGND	A D 1A		
C7019	A D 4B	D7010	A D 8A	R7002	A D 5A	R7026	A D 10B	S7003	A D 9A				
C7020	A D 5A												

— SWITCH/DISPLAY —



4.20 FDP GRID ASSIGNMENT AND ANODE CONNECTION

GRID ASSIGNMENT

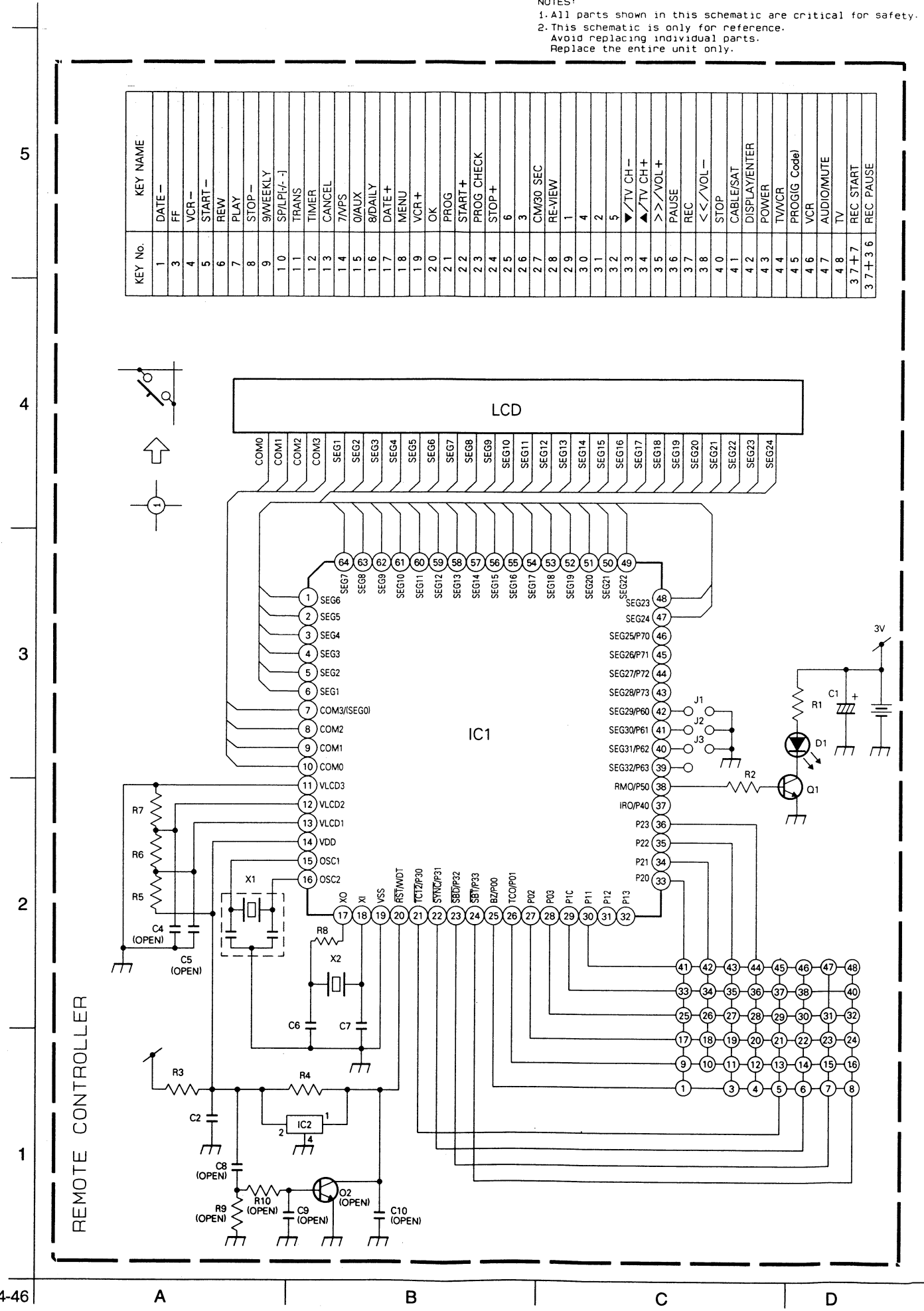


ANODE CONNECTION

	6G	5G	4G	3G	2G	1G
P 1	—	→	S2	1a	1a	1a
P 2	—	⇨	S1	1b	1b	1b
P 3	—	S4	S3	1f	1f	1f
P 4	—	NORM	VPS/PDC	1g	1g	1g
P 5	1	2	⌚	1c	1c	1c
P 6	📺	📺	📺	1e	1e	1e
P 7	B10	B10	📺	1d	1d	1d
P 8	B9	B9	VCR	col2	1h	1h
P 9	B8	B8	1a	2a	col1	2a
P10	B7	B7	1b	2b	⇨	2b
P11	B6	B6	1f	2f	VN	2f
P12	B5	B5	1g	2g	LD	2g
P13	B4	B4	1c	2c	SP	2c
P14	B3	B3	1e	2e	S (SEP)	2e
P15	B2	B2	1d	2d	= (SEP)	2d
P16	B1	B1	1h	SVHS	LP (SEP)	REVIEW

4.21 REMOTE CONTROL SCHEMATIC DIAGRAM

NOTES:
1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference.
Avoid replacing individual parts.
Replace the entire unit only.



4.22 VOLTAGE CHARTS

<VIDEO/N.AUDIO>

MODE PIN NO.	REC	PLAY
IC1		
1	2.5	2.5
2	2.5	2.5
3	0	0
4	2.5	2.5
5	0	0
6	2.8	2.8
7	2.5	2.5
8	2.5	2.5
9	2.5	2.5
10	2.5	2.5
11	2.5	2.5
12	5.0	5.0
13	1.9	1.4
14	1.9	1.4
15	2.6	3.0
16	1.5	0.7
17	1.8	1.8
18	2.3	2.3
19	3.1	3.1
20	2.7	2.7
21	2.3	2.3
22	1.9	1.9
23	3.0	3.0
24	2.2	2.2
25	1.4	1.4
26	2.1	2.1
27	0	0
28	4.9	4.9
29	1.6	1.9
30	3.0	3.0
31	2.8	2.8
32	0	0
33	0	0
34	0	0
35	3.0	3.0
36	5.0	5.0
37	0	0
38	5.0	5.0
39	3.3	3.3
40	5.0	5.0
41	5.0	5.0
42	1.9	1.9
43	5.0	5.0
44	2.5	2.5
45	0	0
46	2.0	2.0
47	0	0
48	0	0
49	0	0
50	0.4	0.4
51	0	0
52	1.3	2.4
53	3.0	2.8
54	1.9	1.9
55	2.1	2.1
56	2.8	2.3
57	0	0
58	3.0	3.0
59	3.3	3.3
60	2.1	2.1
61	4.9	4.9
62	4.9	4.9
63	4.9	4.9
64	0	0
65	0.9	2.6
66	4.9	4.9
67	4.9	4.9
68	0	0
69	2.8	2.8
70	2.7	2.7
71	2.1	2.1
72	2.3	2.1
73	-	-
74	2.7	1.1
75	-	-
76	2.3	2.3
77	4.5	4.5

MODE PIN NO.	REC	PLAY
78	2.7	2.7
79	4.3	2.1
80	0	0
81	-	-
82	1.2	1.2
83	2.3	2.3
84	0	1.3
85	0	0
86	2.3	2.3
87	2.2	2.2
88	2.3	2.3
89	2.3	2.3
90	4.9	4.9
91	0	0
92	0	0
93	0	0
94	0	0
95	0.5	0.5
96	5.0	5.0
97	0.3	0
98	5.0	5.0
99	0.5	2.5
100	2.5	2.5
IC2		
1	2.7	2.7
2	0	0
3	2.7	2.7
4	4.9	0
5	2.7	2.7
6	5.0	5.0
7	2.0	2.0
8	0	0
Q1		
E	3.4	3.4
C	0	0
B	2.7	2.7
Q6		
E	2.7	2.7
C	0	0
B	2.1	2.1
Q13		
E	1.1	1.1
C	3.9	3.9
B	1.7	1.7
Q14		
E	3.2	3.2
C	4.9	4.9
B	3.9	3.9
Q15		
E	3.8	3.8
C	0	0
B	3.2	3.2
Q16		
E	4.9	4.9
C	4.9	0
B	0.2	5.0
Q17		
E	0	0
C	0	0
B	3.0	3.0
Q18		
E	0	0
C	0	0
B	3.0	3.0
Q34		
E	2.4	2.2
C	2.3	2.3
B	0	0
Q35		
E	2.3	2.3
C	2.2	2.2
B	0	0
Q36		
E	0	0
C	0	0
B	0.7	0.7
Q37		
E	0	0

MODE PIN NO.	REC	PLAY
C	0	0
B	0.7	0.7
Q47		
E	4.9	4.9
C	2.3	2.3
B	2.8	2.8
Q48		
E	1.9	1.9
C	0	0
B	1.0	1.0
Q49		
E	2.1	2.1
C	4.9	4.9
B	2.8	2.8
Q55		
E	0	0
C	0	0
B	3.0	3.0
Q152		
E	5.0	2.7
C	0	0
B	4.5	2.1
Q153		
E	2.1	2.1
C	4.9	4.9
B	2.7	2.7
Q2001		
E	-19.0	0
C	0	0
B	-25.3	0.7
Q2002		
E	-19.0	0
C	0	0
B	-24.9	0.7
Q2003		
E	5.0	5.0
C	-25.1	4.9
B	5.0	0
Q2051		
E	0	0
C	8.1	0.2
B	0	0.2
Q2052		
E	11.5	11.5
C	11.3	1.1
B	10.7	11.5
Q2053		
E	0	0
C	0	11.4
B	4.5	0
Q2054		
E	11.3	1.1
C	11.2	0
B	10.5	1.1
Q2055		
E	0	0
C	0	1.1
B	5.0	0
Q2061		
E	0	0
C	7.9	0.2
B	0	0.2
Q2062		
E	11.2	0
C	11.1	0.2
B	10.4	0
Q2063		
E	0	0
C	0	0
B	5.0	0
CN1		
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	2.2	2.5
7	2.5	2.5
CN2001		
1	0	0
2	0	0
3	0	0
4	0	0
5	2.3	2.3
6	2.3	2.3
7	2.2	2.2

MODE PIN NO.	REC	PLAY
8	2.4	2.2
9	2.5	0
10	2.5	0
11	2.5	0
CN101		
1	0	0
2	-	-
3	4.8	4.8
4	-	-
5	4.9	4.9
6	0	0
7	0	0
8	0	0
9	0.5	0
10	0	0
11	0	0
12	0	0
13	5.0	5.0
14	4.9	4.9
15	0	0
16	0	0
17	0.4	0.4
18	0	0
19	3.4	3.4
20	0	0
21	0	0
22	2.1	2.1
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
CN102		
1	1.4	1.1
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	1.4	1.1
8	1.9	1.9
9	1.3	2.3
10	5.0	5.0
11	2.4	2.4
12	2.9	2.9
13	0	0
14	0	0
15	2.3	2.3
16	0	0
17	4.9	4.9
18	4.9	4.9
19	4.9	4.9
20	5.0	5.0
21	2.3	2.3
22	0	0
23	2.3	2.3
24	0	0
25	0	0
26	2.4	2.4
27	1.8	1.8
28	0	0
29	0	0
30	0	0
CN2001		
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	2.2	2.5
7	2.5	2.5
CN2002		
1	0	0
2	0	0

<ON SCREEN>

MODE PIN NO.	REC	PLAY
IC201		
1	0	0
2	2.7	2.7
3	5.0	5.0
4	0	0
5	4.7	4.7
6	2.5	2.5
7	2.5	2.5
8	5.0	5.0
9	3.0	3.0
10	4.5	4.5
11	1.2	1.2
12	5.0	5.0
13	2.9	2.9
14	2.9	2.9
15	0	0
16	1.2	1.2
17	0	0
18	5.0	5.0
19	2.3	2.3
20	0	0
21	2.3	2.3
22	0.5	0.5
23	5.0	5.0
24	2.9	2.9
25	2.5	2.5
26	5.0	5.0
27	4.7	4.7
28	3.7	3.7
29	5.0	5.0
30	5.0	5.0
Q207		
E	3.0	3.0
C	0	0
B	2.3	2.3
Q208		
E	2.3	2.3
C	5.0	5.0
B	3.0	3.0

<FMA>

MODE PIN NO.	REC	PLAY
IC2201		
1	2.4	2.4
2	0	0
3	2.4	2.4
4	0	0
5	0	0
6	2.5	2.5
7	2.0	2.0
8	0	0
9	0	0
10	0	0
11	0	0
12	2.0	2.0
13	0	0
14	0	0
15	0	0
16	2.5	2.5
17	0.6	0.3
18	2.5	2.5
19	2.5	2.5
20	2.5	0.1
21	2.5	0
22	2.6	0.6
23	0	0
24	2.5	0.7
25	4.9	4.9
26	2.6	0

MODE PIN NO.	REC	PLAY
27	0	-
28	4.2	0
29	4.4	1.8
30	4.4	1.7
31	1.0	3.0
32	2.5	2.5
33	2.5	2.5
34	0.7	0.3
35	2.5	2.5
36	0	0.2
37	1.7	1.7
38	0	0
39	0	0
40	5.0	5.0
41	0	0
42	5.0	5.0
43	4.9	4.9
44	3.2	3.2
45	0	0
46	4.8	4.8
47	2.5	2.5
48	2.5	2.5
49	3.4	2.8
50	1.3	2.9
51	0	0
52	0	0
53	4.4	4.4
54	0	0
55	0	0
56	0	0
57	4.4	4.4
58	10.0	10.0
59	4.5	4.5
60	0	0.8
61	2.5	2.5
62	2.4	2.4
63	4.4	4.4
64	4.5	4.5
Q2151		
E	4.9	4.9
C	5.0	5.0
B	2.1	2.1
Q2152		
E	5.0	5.0
C	4.9	4.9
B	0	0.2
Q2201		
E	0	0
C	0	0
B	0	0
Q2202		
E	0	0
C	0	0
B	0	0
Q2203		
E	5.2	5.2
C	0	0
B	5.1	5.1
Q2204		
E	0	0
C	5.1	5.1
B	0	0.2
Q2253		
E	0	0
C	-	0
B	0	0
Q2255		
E	0	0
C	0	0
B	4.2	4.2
Q2256		
E	0	0
C	4.2	4.2
B	0	0
Q2258		
E	4.5	0
C	4.4	1.7
B	0.2	5.0

<SYSTEM CONTROL>

MODE PIN NO.	REC	PLAY
IC3001		
1	2.8	2.5
2	0	0
3	1.9	2.5
4	2.5	2.5
5	2.5	2.5
6	2.6	2.6
7	2.5	2.5
8	2.5	2.5
9	5.1	5.1
10	5.1	5.1
11	0	0
12	0	0.2
13	0	1.1
14	4.6	4.6
15	5.1	5.1
16	1.3	2.9
17	0	0.7
18	0	0
19	3.4	2.8
20	0.2	0.2
21	4.1	4.1
22	4.2	0
23	0	0
24	5.0	5.0
25	0	0
26	5.1	5.1
27	5.1	5.1
28	5.1	5.1
29	5.1	5.1
30	0	0
31	5.1	5.1
32	0	0
33	0	0
34	0	5.1
35	0	0
36	0	0
37	5.0	5.0
38	1.8	1.8
39	4.5	4.5
40	0	0
41	5.1	5.1
42	4.6	4.6
43	0	0
44	0	0
45	5.1	5.1
46	5.1	0
47	0	0
48	5.1	0
49	4.9	4.9
50	4.9	4.9
51	5.1	5.1
52	1.0	1.0
53	4.5	4.5
54	-	-
55	-	-
56	0	0
57	0	0
58	5.0	5.0
59	3.0	3.0
60	0	0
61	0	0
62	0	0
63	0	0
64	-	-
65	-	-
66	5.1	5.1
67	-	-
68	0	0
69	-	-
70	5.1	5.1
71	5.1	5.1
72	5.0	5.0
73	5.1	5.1
74	0	0
75	4.7	4.7
76	4.7	4.7
77	3.1	3.1

<TERMINAL(MAIN)>

MODE PIN NO.	REC	PLAY
CN7501		
1	0.2	5.0
2	0	0
3	0	0
4	2.3	2.3
5	0	0
6	1.2	1.2
7	11.5	11.5
8	0.7	0.7
9	11.5	11.5
CN7502		
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	4.8	4.8
8	4.7	4.7
9	5.1	5.1
10	5.1	5.1
CN7503		
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
CN7504		
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0

<3D SVHS (VIDEO)>

MODE PIN NO.	REC	PLAY
IC1001		
1	3.0	3.0
2	0	3.9
3	2.2	2.2
4	1.8	1.8
5	2.9	2.9
6	2.8	2.8
7	2.3	2.3
8	3.0	3.0
9	2.3	2.3
10	2.8	2.8
11	2.8	2.8
12	2.2	2.2
13	4.9	4.9
14	4.9	4.9
15	2.5	2.5
16	3.0	2.8
17	0	0
18	2.9	2.1
19	0.5	1.1
20	0	0.4
21	2.3	2.3
22	2.8	2.8
23	2.3	2.3
24	0	0
25	3.4	3.4
26	2.1	2.1
27	2.8	2.8
28	2.8	2.8
29	2.8	2.8
30	0	0
31	2.8	2.8

MODE PIN NO.	REC	PLAY
32	0	0
33	2.8	2.8
34	4.9	4.9
35	2.8	2.8
36	1.9	1.9
37	3.1	3.1
38	2.9	2.9
39	2.4	2.4
40	2.7	2.7
41	2.9	2.9
42	2.8	2.8
43	3.1	3.1
44	2.2	2.2
45	0	0
46	2.8	2.8
47	1.9	1.1
48	2.8	2.8
49	4.9	4.9
50	2.8	2.8
51	4.9	4.9
52	2.8	2.8
53	1.9	1.9
54	2.6	3.6
55	0	0
56	2.3	2.3
IC1002		
1	-	-
2	-	-
3	-	-
4	-	-
5	-	-
6	-	-
7	-	-
8	-	-
9	-	-
10	-	-
11	-	-
12	-	-
13	-	-
14	-	-
15	-	-
16	-	-
17	-	-
18	-	-
IC1006		
1	-	-
2	-	-
3	-	-
4	-	-
5	-	-
6	-	-
7	-	-
8	-	-
9	-	-
10	-	-
11	2.7	2.7
12	1.5	1.5
13	0.8	0.8
14	3.3	3.3
15	3.4	3.2
16	1.3	1.3
17	4.0	4.0
18	1.1	1.1
19	4.8	4.8
20	0.7	0.7
IC1007		
1	-	-
2	-	-
3	-	-
4	-	-
5	2.2	2.2
6	2.0	2.0
7	3.7	3.7
8	4.9	4.9
Q1004		
E	-	-
C	-	-
B	-	-

MODE PIN NO.	REC	PLAY
Q1005		
E	0	0
C	0	0
B	2.6	2.6
Q1006		
E	3.9	3.9
C	0	0
B	3.3	3.3
Q1007		
E	1.4	1.4
C	3.5	3.5
B	2.1	2.1
Q1012		
E	2.5	2.5
C	4.9	4.9
B	3.2	3.2
Q1014		
E	0	0
C	1.2	1.2
B	0.6	0.6
Q1015		
E	0.6	0.6
C	3.2	3.2
B	1.3	1.3
Q1016		
E	-	-
C	-	-
B	-	-
Q1021		
E	3.0	3.0
C	0	0
B	2.4	2.4
Q1022		
E	0	0
C	4.4	0
B	0.3	3.9
CN1001		
1	0	0
2	-	-
3	4.8	4.8
4	-	-
5	4.9	4.9
6	0	0
7	0	0
8	0	0
9	0.5	0
10	0	0
11	0	0
12	0	0
13	5.0	5.0
14	4.9	4.9
15	0	0
16	0	0
17	0.4	0.4
18	0	0
19	3.4	3.4
20	0	0
21	0	0
22	2.1	2.1
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
CN1002		
1	1.4	1.1
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	1.4	1.1
8	1.9	1.9
9	1.3	2.3
10	5.0	5.0

MODE PIN NO.	REC	PLAY
11	2.4	2.4
12	2.9	2.9
13	0	0
14	0	0
15	2.3	2.3
16	0	0
17	4.9	4.9
18	4.9	4.9
19	4.9	4.9
20	5.0	5.0
21	2.3	2.3
22	0	0
23	2.3	2.3
24	0	0
25	0	0
26	2.4	2.4
27	1.8	1.8
28	0	0
29	0	0
30	0	0
CN1003		
1	2.1	2.1
2	0	0
3	2.3	2.3
4	0	0
5	5.7	5.7
6	0	0
7	5.6	5.6

<3D SVHS (3D/TBC)>

MODE PIN NO.	REC	PLAY
IC1401		
1	-	-
2	-	-
3	-	-
4	-	-
5	-	-
6	-	-
7	-	-
8	-	-
9	-	-
10	-	-
11	-	-
12	-	-
13	-	-
14	-	-
15	-	-
16	-	-
17	-	-
18	-	-
19	-	-
20	-	-
21	-	-
22	-	-
23	-	-
24	-	-
25	-	-
26	-	-
27	-	-
28	-	-
29	-	-
30	-	-
31	-	-
32	-	-
33	-	-
34	-	-
35	-	-
36	-	-
37	-	-
38	-	-
39	-	-
40	-	-
41	-	-

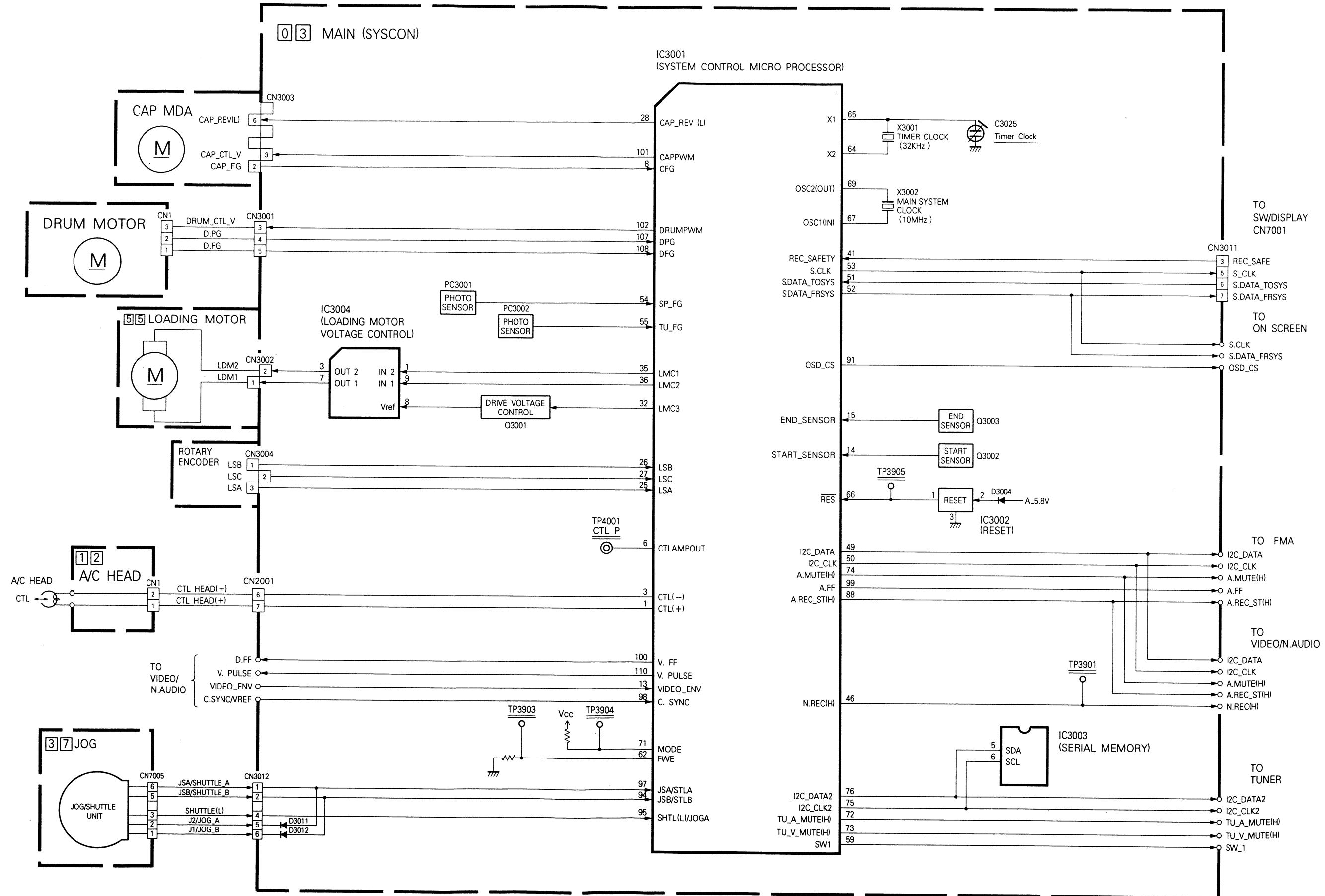
MODE PIN NO.	REC	PLAY
42	-	-
43	-	-
44	-	-
45	-	-
46	-	-
47	-	-
48	-	-
49	-	-
50	-	-
51	-	-
52	-	-
53	-	-
54	-	-
55	-	-
56	-	-
57	-	-
58	-	-
59	-	-
60	-	-
61	-	-
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72	-	-
73	-	-
74	-	-
75	-	-
76	-	-
77	-	-
78	-	-
79	-	-
80	-	-
81	-	-
82	-	-
83	-	-
84	-	-
85	-	-
86	-	-
87	-	-
88	-	-
89	-	-
90	-	-
91	-	-
92	-	-
93	-	-
94	-	-
95	-	-
96	-	-
97	-	-
98	-	-
99	-	-
100	-	-
Q1401		
E	-	-
C	-	-
B	-	-
Q1402		
E	-	-
C	-	-
B	-	-
Q1403		
E	-	-
C	-	-
B	-	-
Q1404		
E	-	-
C	-	-
B	-	-
Q1405		
E	-	-
C	-	-

MODE PIN NO.	REC	PLAY
B	-	-
Q1406		
E	-	-
C	-	-
B	-	-
Q1407		
E	-	-
C	-	-
B	-	-
Q1408		
E	-	-
C	-	-
B	-	-
Q1409		
E	-	-
C	-	-
B	-	-
Q1410		
E	-	-
C	-	-
B	-	-
Q1411		
E	-	-
C	-	-
B	-	-
Q1412		
E	-	-
C	-	-
B	-	-
Q1413		
E	-	-
C	-	-
B	-	-
Q1414		
E	-	-
C	-	-
B	-	-
Q1416		
E	-	-
C	-	-
B	-	-
Q1417		
E	-	-
C	-	-
B	-	-
Q1418		
E	-	-
C	-	-
B	-	-

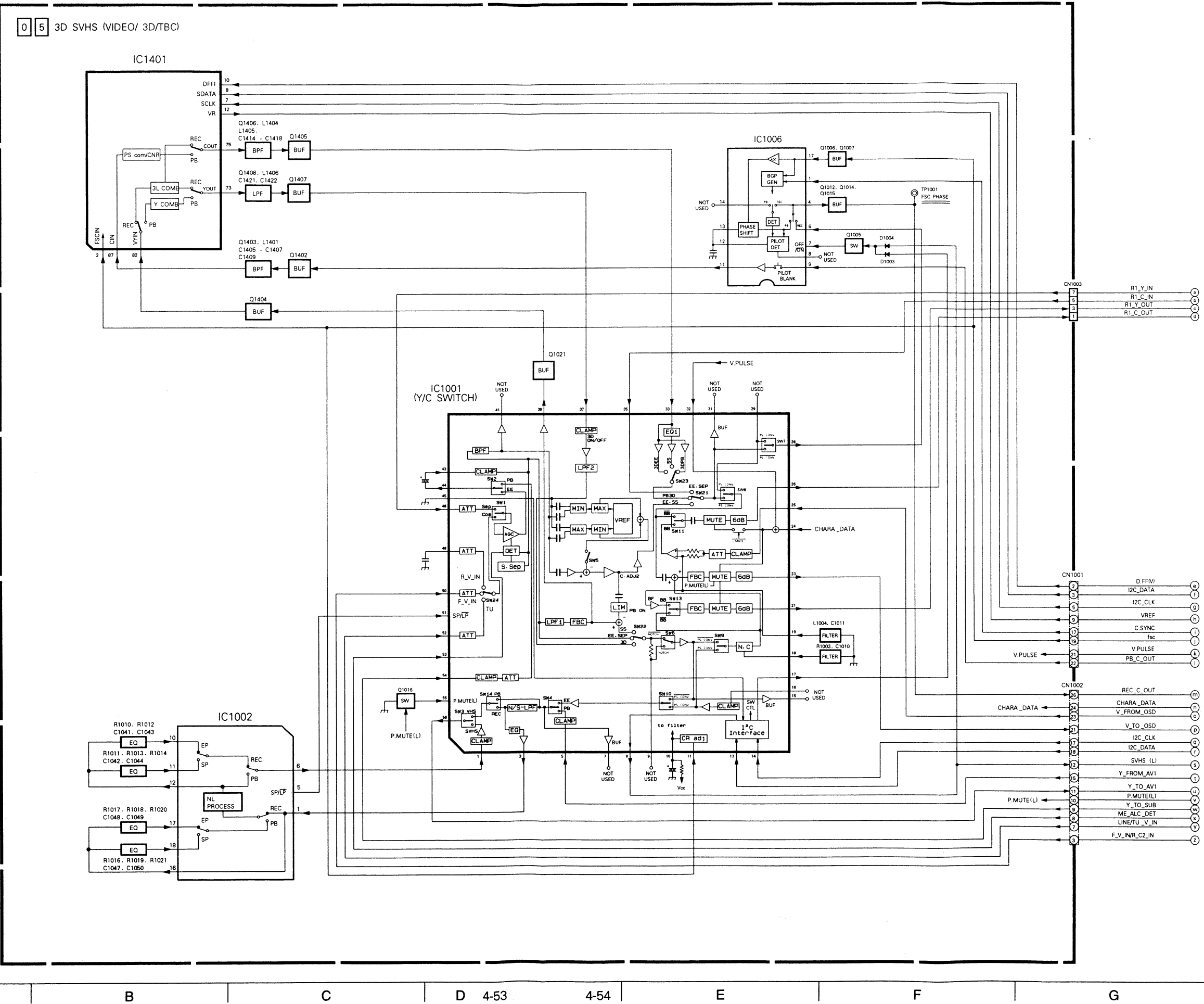
<TERMINAL>

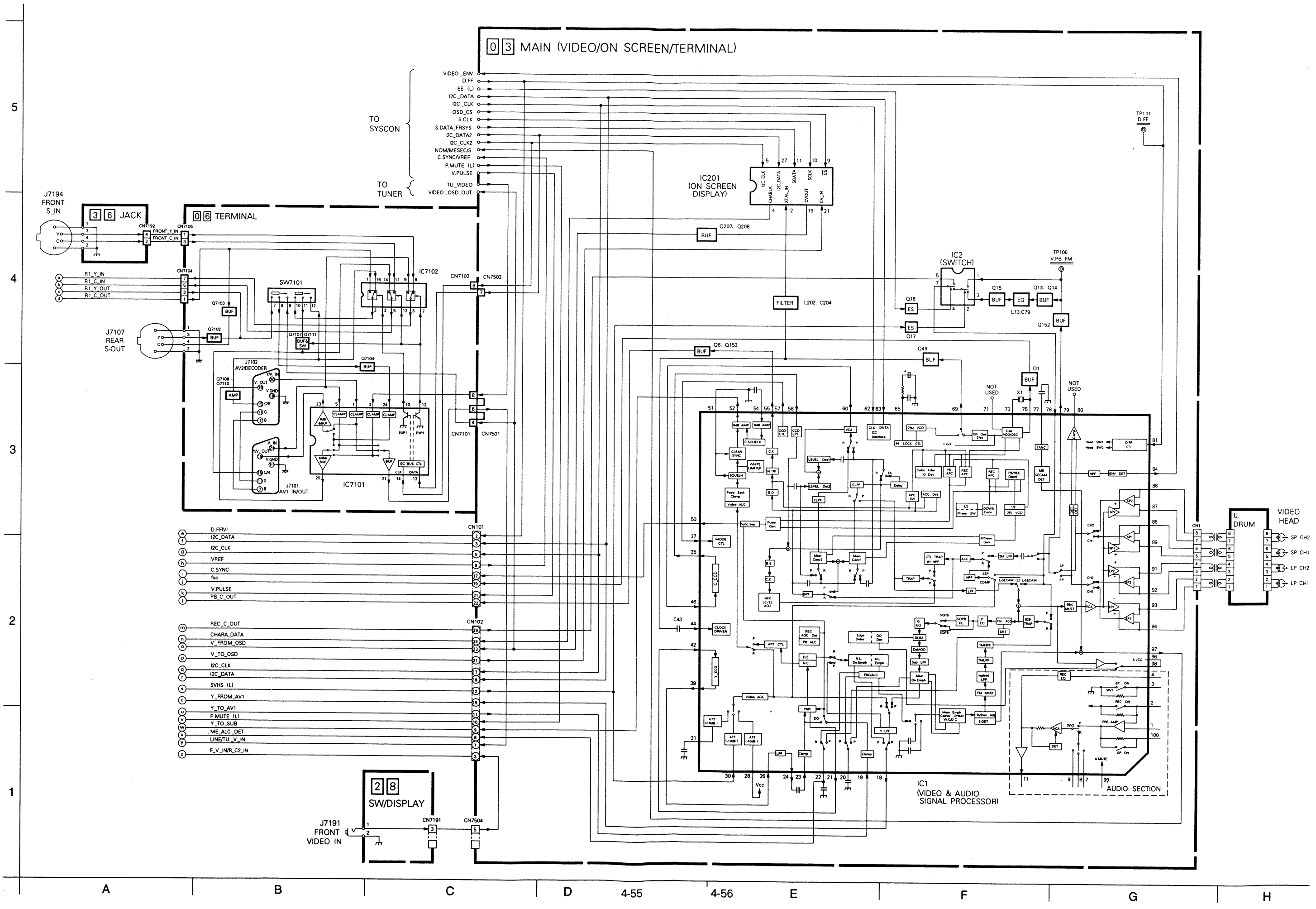
MODE PIN NO.	REC	PLAY
IC7101		
1	1.6	1.6
2	0	0
3	1.6	1.6
4	11.5	11.5
5	2.0	2.0
6	0	0
7	5.1	5.1
8	11.5	11.5
9	5.1	5.1
10	5.2	5.2
11	5.1	5.1
12	0	0
13	4.8	4.8
14	4.8	4.8
15	5.8	5.8
16	5.1	5.1
17	5.8	5.8
18	5.1	5.1
19	11.5	11.5
20	2.5	2.5

MODE PIN NO.	REC	PLAY
21	1.4	1.1
22	1.4	1.1
23	2.5	2.5
24	2.0	2.0
IC7102		
1	6.4	6.4
2	5.2	5.2
3	5.7	5.7
4	0	0
5	5.7	5.7
6	5.7	5.7
7	0	0
8	6.4	6.4
9	-	-
10	-	-
11	-	-
12	-	-
13	-	-
14	-	-
15	-	-
16	6.4	6.4
Q7102		
E	3.0	3.0
C	0	0
B	2.3	2.3
Q7103		
E	2.8	2.8
C	0	0
B	2.1	2.1
Q7104		
E	3.0	3.0
C	0	0
B	2.3	2.3
Q7107		
E	-	-
C	-	-
B	-	-
Q7108		
E	-	-
C	-	-
B	-	-
Q7109		
E	-	-
C	-	-
B	-	-
Q7110		
E	-	-
C	-	-
B	-	-
Q7111		
E	0	0
C	6.2	6.2
B	0	0
Q7112		
E	0.6	0.6
C	11.5	11.5
B	0	0
CN7101		
1	0.2	5.0
2	0	0
3	0	0
4	2.3	2.3
5	0	0
6	1.2	1.2
7	11.5	11.5
8	0.7	0.7
9	11.5	11.5
CN7102		
1	0	0

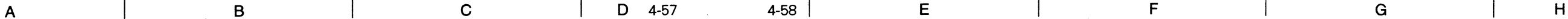
[illegible]

4.24 VIDEO BLOCK DIAGRAM





1 2 3 4 5



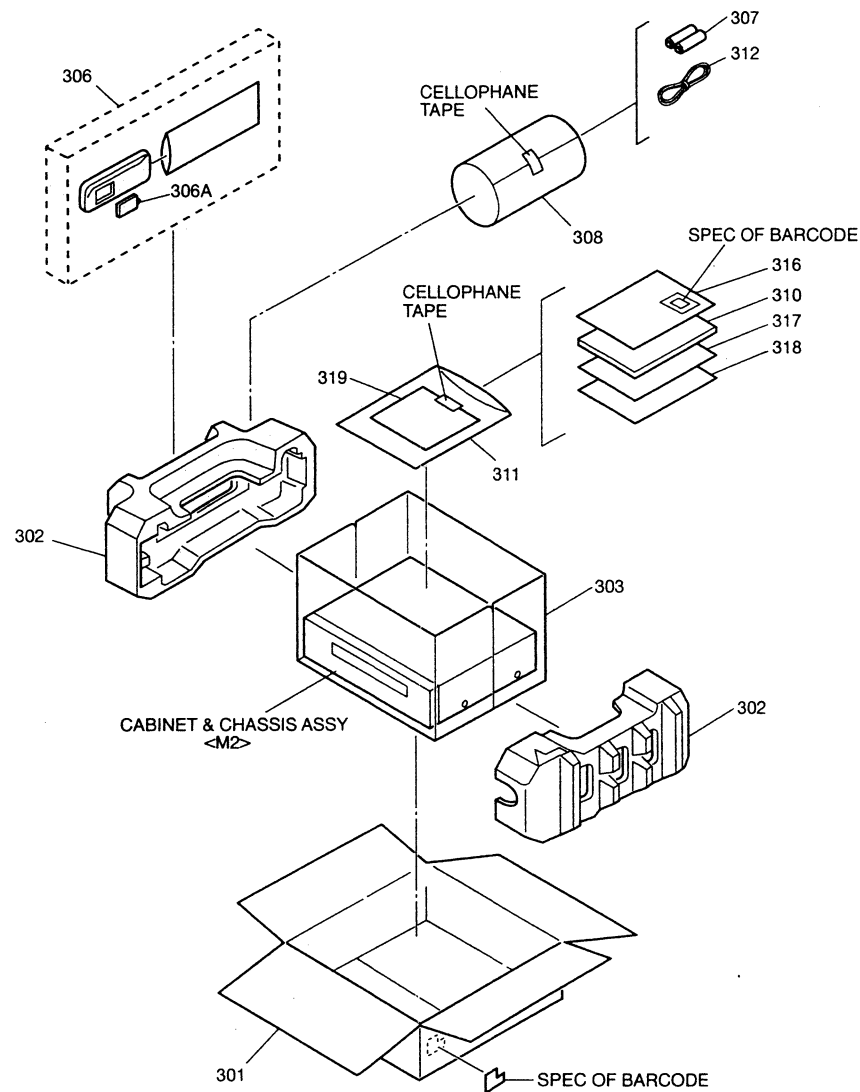
SECTION 5
PARTS LIST

SAFETY PRECAUTION

Parts identified by the  symbol are critical for safety. Replace only with specified part numbers.

5.1 PACKING AND ACCESSORY ASSEMBLY <M1>

The instruction manual to be provided with this product will differ according to the destination.



#	△	REF No.	PART No.	PART NAME, DESCRIPTION

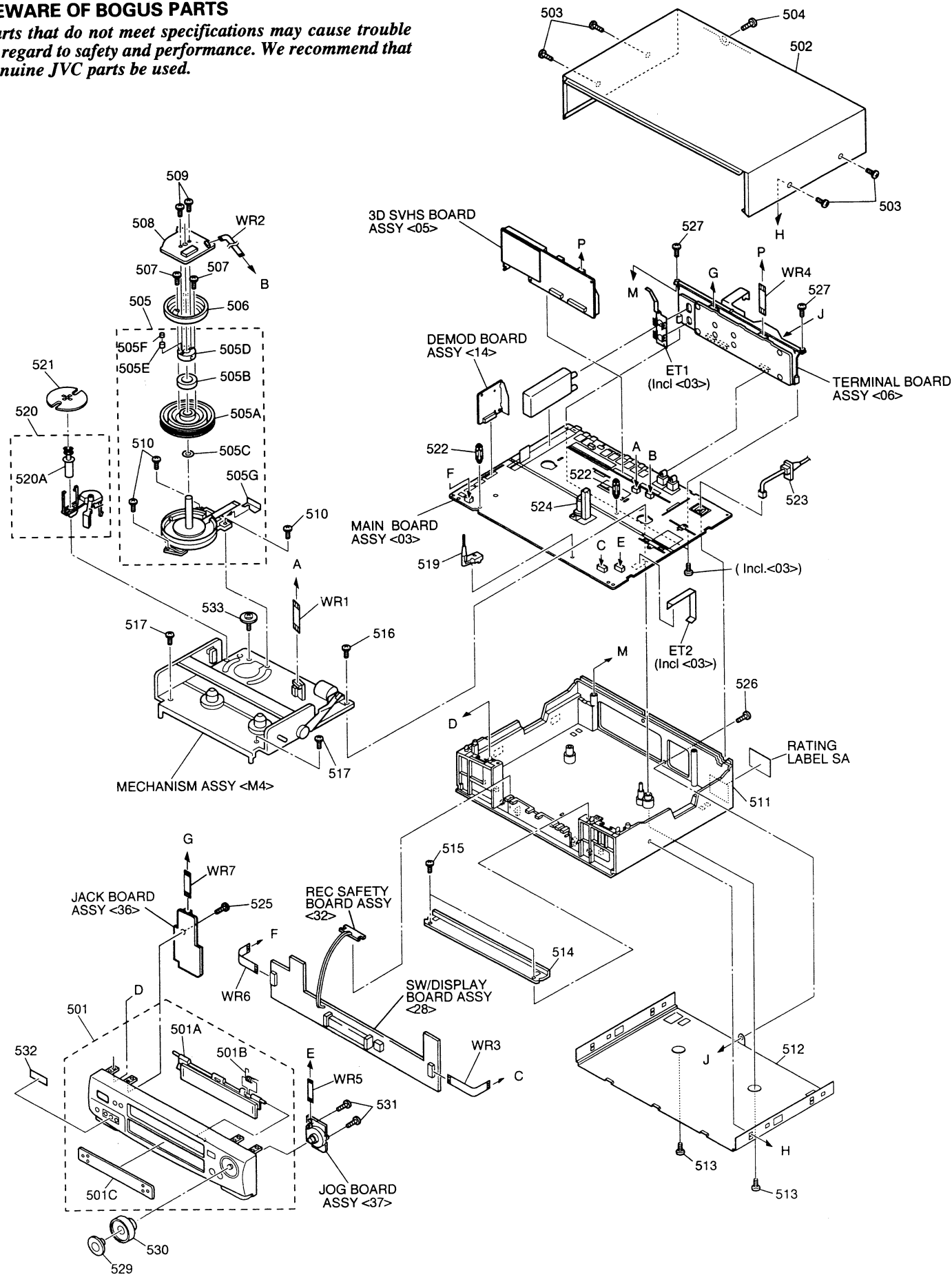
PACKING AND ACCESSORY ASSEMBLY <M1>				
		301	LP30615-001A	PACKING CASE,S7600EU
			LP30615-009A	PACKING CASE,S7611EU
		302	LP30606-002B	CUSHION ASSY
		303	PQM30021-95	POLY BAG
		306	LP20667-003C	REMOTE CONTROLLER,S7611EU
			LP20667-002C	REMOTE CONTROLLER,S7600EU
		306A	LP40225-002A	COVER(BATTERY),S7611EU
			LP40225-003A	COVER(BATTERY),S7600EU
		307	-	BATTERY,X2("R6" TYPE)
		308	QPC02202230P	POLY BAG
	△	310	LPT0249-001A	INST.BOOK(EN)
	△		LPT0249-002A	INST.BOOK(GE)
	△		LPT0249-003A	INST.BOOK(FR)
	△		LPT0249-004A	INST.BOOK(DU)

#	△	REF No.	PART No.	PART NAME, DESCRIPTION
	△		LPT0249-005A	INST.BOOK(SP)
	△		LPT0249-006A	INST.BOOK(IT)
	△		LPT0249-007A	INST.BOOK(DA)
	△		LPT0249-008A	INST.BOOK(FI)
	△		LPT0249-009A	INST.BOOK(SW)
	△		LPT0249-010A	INST.BOOK(NO)
	△		LPT0249-011A	INST.BOOK(PT)
	△		LPT0249-012A	INST.BOOK(GR)
	△		LPT0249-013A	INST.BOOK(CZ)
	△		LPT0249-014A	INST.BOOK(PO)
	△		LPT0249-015A	INST.BOOK(HU)
		311	QPC02503530P	POLY BAG
		312	PEAC0300-02	RF CABLE
		316	BT-54013-1	WARRANTY CARD
		317	PQ45146-170	SHEET(SPAIN),S7600EU
			PQ45146-173	SHEET(SPAIN),S7611EU
		318	LP40605-001A	SHEET
		319	LPT0248-018A	SHEET(ATTENTION)

5.2 CABINET AND CHASSIS ASSEMBLY <M2>

BEWARE OF BOGUS PARTS

Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.



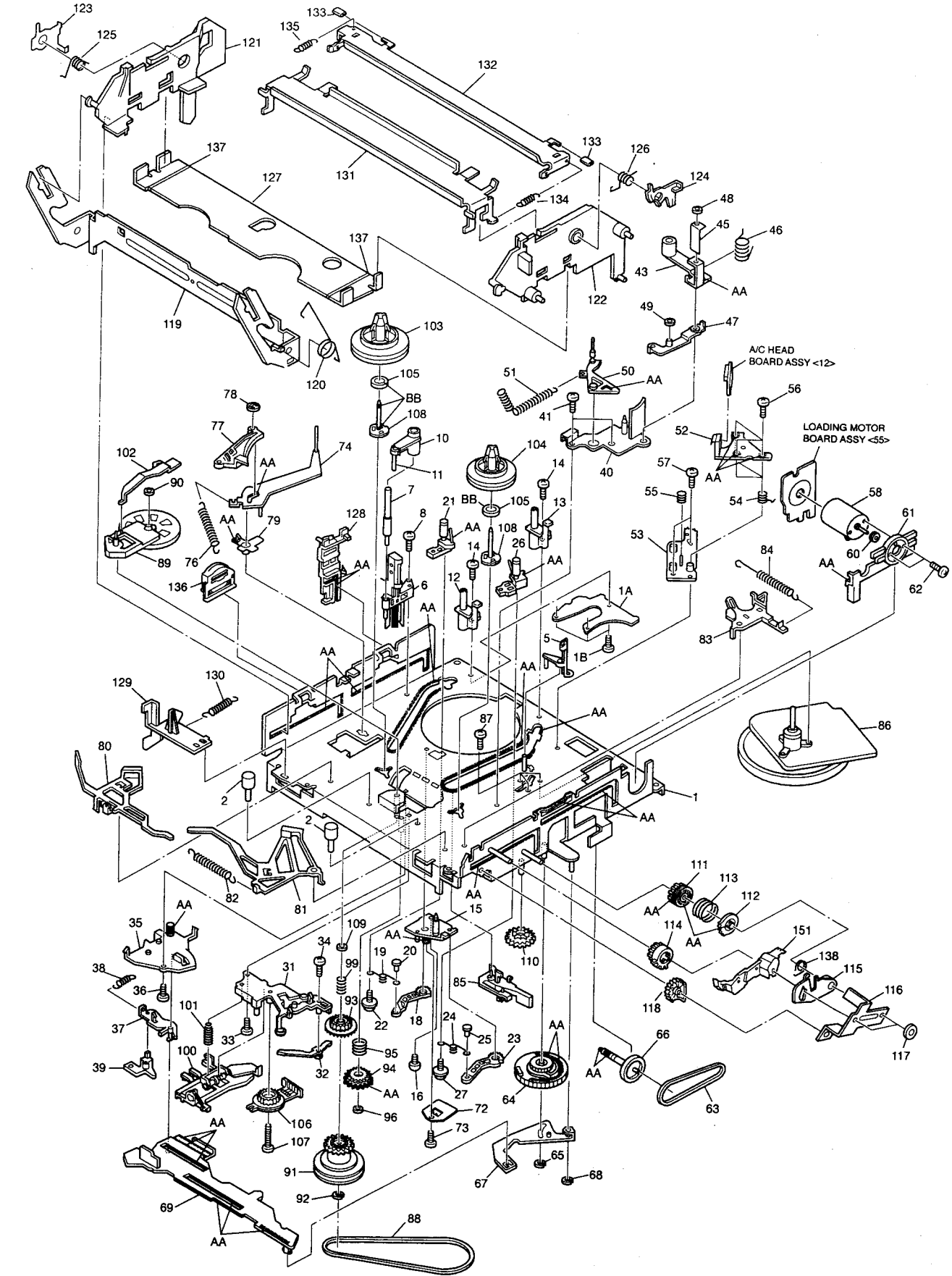
#	△	REF No.	PART No.	PART NAME, DESCRIPTION

CABINET AND CHASSIS ASSEMBLY <M2>

△	501	LP10217-007C	FRONT PANEL ASSY,S7600EU
△		LP10217-014C	FRONT PANEL ASSY,S7611EU
	501A	LP20342-033A	CASSETTE DOOR,S7600EU
		LP20342-038A	CASSETTE DOOR,S7611EU
	501B	PQ46448	TORSION SPRING
	501C	LP30531-004B	DISPLAY WINDOW,S7600EU
		LP30531-010B	DISPLAY WINDOW,S7611EU
△	502	PQ11676-91	TOP COVER,S7611EU
△		PQ11676-87	TOP COVER,S7600EU
	503	QYTDSF3010M	SCREW,X4 TOP COVER(SIDE) S7611EU
		QYTDSF3010R	SCREW,X4 TOP COVER(SIDE) S7600EU
	504	QYTDSF3010M	SCREW,TOP COVER(REAR)
	505	LP20617-011A	DRUM SUB ASSY
	505A	LP20616-005A	UPPER DRUM ASSY
	505B	PDM4439	CAP
	505C	PDM4444-19-2	WASHER
	505D	LP40572-001A	COLLAR ASSY
	505E	LP40323-001A	CONTACT
	505F	LP30004-014A	COMPRESSION SPRING
	505G	LP40174-001B	FPC PLATE
	506	PDZ0179-1-4	ROTOR ASSY
	507	QYSPSP3006Z	SCREW,X2
	508	PDZ0180-1-2	STATOR ASSY
	509	QYSPSPH2606Z	SCREW,X2
	510	QYTDSF2610Z	SCREW,X3 DRUM
△	511	LP10116-003G	BOTTOM CHASSIS
△	512	PQ11668-2-11	BOTTOM COVER
	513	QYTDSF3010Z	SCREW,X2 BOTTOM COVER
	514	LP30312-001B	BRACKET(CHASSIS)
	515	QYTDSF3010Z	SCREW,X2 BRACKET(CHASSIS)
	516	QYTDSF4012Z	SCREW,MECHA
	517	QYTDSF3010Z	SCREW,X2 MECHA
	519	LP40407-001A	KNOB ASSY
	520	LP40370-001E	ROLLER ARM ASSY
	520A	PDM4311A-1	ROLLER ASSY
	521	PQ45160	INERTIA PLATE
	522	LP40226-001A	PC SUPPORT,X2
△	523	QMP4A10-170	POWER CORD
	524	LP40253-001B	STOPPER
	525	QYTDSF3010Z	SCREW,S JACK BOARD
	526	QYTDSF3010M	SCREW,TERMINAL
	527	QYTSPFG3010Z	SCREW,X2 TERMINAL
	529	LP30121-001A	KNOB(JOG),S7611EU
		LP30121-005A	KNOB(JOG),S7600EU
	530	LP30120-001A	KNOB SHUTTLE,S7611EU
		LP30120-005A	KNOB SHUTTLE,S7600EU
	531	QYTDSF2608Z	SCREW,X2 JOG
	532	LP30532-001A	CAP(JACK),S7600EU
		LP30532-003A	CAP(JACK),S7611EU
	533	PQ40413	SPECIAL SCREW,MECHA
	WR1	QUQ112-0714CG	FFC WIRE,A/C HEAD CN2001
	WR2	QUQ212-0520CG	FFC WIRE,DRUM CN3001
	WR3	QUQ112-1414CG	FFC WIRE,DISPLAY CN3011
	WR4	QUQ112-0708CG	FFC WIRE,TERMINAL CN1003
	WR5	QUQ112-0616CG	FFC WIRE,JOG CN3012
	WR6	QUQ212-0516CG	FFC WIRE,JACK CN7504
	WR7	QUQ212-0446CG	FFC WIRE,S JACK CN7105

#	△	REF No.	PART No.	PART NAME, DESCRIPTION
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5.3 MECHANISM ASSEMBLY <M4>



Classification	Part No.	Symbol in drawing
Grease	KYODO-SH-P	AA
Oil	COSMO-HV56	BB

NOTE: The section marked in AA and BB indicate lubrication and greasing areas.

Δ REF No. PART No. PART NAME, DESCRIPTION

MECHANISM ASSEMBLY <M4>

1	LP20228-008H	MAIN DECK ASSY
1A	LP40275-003A	PLATE(SUPPLY)
1B	QYTDST2606Z	SCREW,X4
2	PQ46302-1-3	ADJUST PIN,X2
5	LP30492-002B	GUIDE POLE GUARD
6	NAH0001-001	FULL ERASE HEAD
7	LP40098-001B	GUIDE POLE(SUPPLY)
8	QYTDST2608Z	SCREW,FE HEAD
10	LP30459-002A	TENSION STUD BASE
11	LP40367-002A	TENSION STUD
12	LP30409-002C	UV CATCHER 2
13	LP30409-002C	UV CATCHER 2
14	QYTPST2606Z	SCREW,X2 UV CATCHER
15	LP30223-003C	LOADING ARM GEAR SHAFT
16	QYTDST2606Z	SCREW
18	LP30224-001A	LOADING ARM GEAR(SUPPLY)
19	LP40099-001A	TORSION ARM
20	LP40100-001A	PIN
21	LP40101-002C	POLE BASE ASSY(SUPPLY)
22	QYSPSTG2606Z	SCREW
23	LP40103-002B	LOADING ARM GEAR(TAKE UP)
24	LP40099-001A	TORSION ARM
25	LP40100-001A	PIN
26	LP40104-003A	POLE BASE ASSY(TAKE UP)
27	QYSPSTG2606Z	SCREW
31	LP20233-003J	ROTARY ENCODER GUIDE
32	LP30499-001C	BRAKE LEVER
33	QYTPST2606Z	SCREW
34	QYTPST2608Z	SCREW
35	LP30226-004B	CONTROL PLATE GUIDE
36	QYTPST2606Z	SCREW
37	LP30249-003B	TAKE UP LEVER
38	LP30003-006A	TENSION SPRING
39	LP40119-002A	T.UP HEAD
40	LP20234-004B	LID GUIDE
41	QYTDST2606Z	SCREW,X2
43	LP40105-001B	PINCH ROLLER ARM ASSY
45	LP40478-001A	PINCH ROLLER SHEET2
46	LP40148-002A	TORSION SPRING
47	LP40149-001B	P.LEVER ASSY
48	LP30016-002A	SLIT WASHER
50	LP40106-002E	GUIDE ARM ASSY
51	LP40134-001C	TENSION SPRING
52	QAH0010-004	AC HEAD
53	LP30228-001A	HEAD BASE
54	LP30004-013A	COMPRESSION SPRING,X3
55	LP40236-001A	COMPRESSION SPRING
56	LP40213-002B	SPECIAL SCREW,X3
57	QYTDST2608Z	SCREW,X2
58	QAR0023-001	LOADING MOTOR
60	PQ43546-1-2	MOTOR PULLEY
61	LP30230-003A	MOTOR GUIDE
62	QYTPSP3003Z	SCREW,X2
63	LP30005-003A	BELT,LOADING MOTOR
64	LP20791-002B	CONTROL CAM
65	PQM30017-24	SLIT WASHER
66	LP40120-001A	WORM GEAR
67	LP40107-002A	LINK LEVER ASSY
68	PQM30017-24	SLIT WASHER
69	LP10201-002E	CONTROL PLATE
72	LP40379-001B	CONTROL BRACKET(1)

# Δ REF No.	PART No.	PART NAME, DESCRIPTION
73	QYTDSP2608M	SCREW
74	LP40108-002A	TENSION ARM ASSY
76	LP30003-010A	TENSION SPRING
77	LP40109-003D	TENSION BRAKE ASSY
78	PQ46302-1-3	ADJUST PIN
79	LP30232-002A	T.ARM BEARING
80	LP40532-004A	MAIN BRAKE ASSY (SUPPLY)
81	LP40111-006A	MAIN BRAKE AY (TAKE-UP)
82	LP30003-002A	TENSION SPRING
83	LP40112-001F	SUB BRAKE ASSY(TAKE UP)
84	LP40357-002A	TENSION SPRING
85	LP40461-001A	CAPSTAN BRAKE ASSY
86	QAR0087-003	CAPSTAN MOTOR
87	QYTDSP2606M	SCREW,X3
88	LP30005-007A	BELT,CAPSTAN MOTOR
89	LP40114-008A	IDLER ARM ASSY
90	LP30016-001A	SLIT WASHER
91	LP40576-001A	CLUTCH UNIT 2
92	PQM30017-47	SLIT WASHER
93	LP40446-002B	CLUTCH GEAR 1
94	LP40442-001A	DIRECT GEAR
95	LP40483-002A	COMPRESSION SPRING,D.GEAR
96	LP30016-001A	SLIT WASHER,D.GEAR
99	LP40554-001A	COMPRESSION SPRING,C.GEAR1
100	LP40484-001F	CHANGE LEVER ASSY
101	LP40512-002B	COMPRESSION SPRING
102	LP30236-002B	IDLER LEVER
103	LP40420-001A	REEL DISK ASSY(SUPPLY)
104	LP40421-001A	REEL DISK ASSY(TAKE UP)
105	LP30017-015A	SPACER,X2
106	QSW0554-003	ROTARY ENCODER
108	LP40123-001A	REEL SHAFT,X2
107	QYTPST2620Z	SCREW,R.ENCODER
109	LP30017-019A	SPACER,C.GEAR1
110	LP30237-002B	CASSETTE GEAR
111	LP30239-002F	LIMIT GEAR(1)
112	LP30240-002G	LIMIT GEAR(2)
113	LP40136-001E	TORSION SPRING
114	LP30242-002A	RELAY GEAR
115	LP30339-002D	OPENER GUIDE
116	LP40214-001B	C.H.BRACKET
117	PQM30017-47	SLIT WASHER
118	LP30243-001D	DRIVE GEAR
119	LP20240-001C	DRIVE ARM
120	LP40137-001A	TORSION SPRING
121	LP10081-002L	SIDE HOLDER(L)
122	LP10082-002M	SIDE HOLDER(R)
123	LP30255-006A	LOCK LEVER(L)
124	LP30256-001H	LOCK LEVER(R)
125	LP40168-001A	TORSION SPRING(L)
126	LP40218-001B	TORSION SPRING(R)
127	LP30257-001F	CASSETTE HOLDER
128	LP30244-002G	GUIDE RAIL
129	LP30245-002E	REC SAFETY LEVE
130	LP30003-004A	TENSION SPRING
131	LP20578-001C	TOP GUIDE
132	LP30500-001C	HOLD PLATE
133	LP40450-003A	PAD,X2 HOLD PLATE
134	LP30003-025B	TENSION SPRING
135	LP30003-024A	TENSION SPRING
136	LP40481-003A	ROLLER CAM ASSY
137	LP30019-014A	PAD,X2 CASSETTE HOLDER
138	LP40545-001A	TORSION SPRING,OPENER GUIDE
151	LP20324-002F	DOOR OPENER

5.4 ELECTRICAL PARTS LIST

#	△	REF No.	PART No.	PART NAME, DESCRIPTION

MAIN BOARD ASSEMBLY <03>				
PW1			LPA10048-71E	MAIN BOARD ASSY
IC1			JCP8017-MSA	IC
IC2			MM1113XF	IC
IC201			LC74775-9750	IC
IC2201			AN3851FBP	IC
IC3001			HD6432194A56F	IC
IC3002			S-80728AN-DR-X	IC
			or S-80828ANUP-W	IC
IC3003			M24C08-BN6	IC
			or AT24C08-10PC	IC
			or S-24C08ADP	IC
			or X24C08P	IC
			or 24LC08B/P	IC
IC3004			TA7291S	IC
IC5301			LA5634-N	IC
IC6080			BA15218F-XE	IC
Q1			2SB1218A/QR/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
			or 2SA1576A/QR/-X	TRANSISTOR
Q6			2SB1218A/QR/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
			or 2SA1576A/QR/-X	TRANSISTOR
Q13			2SD1819A/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
			or 2SC4081/QRS/-X	TRANSISTOR
Q14			2SD1819A/QRS/-X	TRANSISTOR
			or 2SC4081/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
Q15			2SB1218A/QR/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
			or 2SA1576A/QR/-X	TRANSISTOR
Q16			UN511E	TRANSISTOR
			or PDTA144WU	TRANSISTOR
			or RN2309	TRANSISTOR
			or DTA144WU	TRANSISTOR
Q17			UN521E	TRANSISTOR
			or PDTA144WU	TRANSISTOR
			or RN1309	TRANSISTOR
			or DTC144WU	TRANSISTOR
Q18			UN521E	TRANSISTOR
			or PDTA144WU	TRANSISTOR
			or RN1309	TRANSISTOR
			or DTC144WU	TRANSISTOR
Q34			2SC4081/S/-X	TRANSISTOR
Q35			2SC4081/S/-X	TRANSISTOR
Q36			2SC4081/S/-X	TRANSISTOR
Q37			2SC4081/S/-X	TRANSISTOR
Q47			2SK433/D/-W	JUNCTION FET
Q48			2SK433/D/-W	JUNCTION FET
Q49			2SC3936/BC/-X	TRANSISTOR
Q55			UN521E	TRANSISTOR
			or RN1309	TRANSISTOR
			or DTC144WU	TRANSISTOR
			or PDTA144WU	TRANSISTOR
Q152			2SB1218A/QR/-X	TRANSISTOR
			or 2SA1576A/QRS/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR

#	△	REF No.	PART No.	PART NAME, DESCRIPTION
Q153			2SD1819A/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
			or 2SC4081/QRS/-X	TRANSISTOR
Q207			2SB1218A/QR/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
			or 2SA1576A/QR/-X	TRANSISTOR
Q208			2SD1819A/QRS/-X	TRANSISTOR
			or 2SC4081/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
Q2001			2SC4081/QRS/-X	TRANSISTOR
			or 2SD1819A/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
Q2002			2SC4081/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
			or 2SD1819A/QRS/-X	TRANSISTOR
Q2003			DTA144WU	TRANSISTOR
			or PDTA144WU	TRANSISTOR
			or RN2309	TRANSISTOR
			or UN511E	TRANSISTOR
Q2051			2SC4081/QRS/-X	TRANSISTOR
			or 2SD1819A/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
Q2052			2SA1576A/QR/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
			or 2SB1218A/QR/-X	TRANSISTOR
Q2053			DTC144WU	TRANSISTOR
			or PDTA144WU	TRANSISTOR
			or RN1309	TRANSISTOR
			or UN521E	TRANSISTOR
Q2054			2SA1576A/QR/-X	TRANSISTOR
			or 2SB1218A/QR/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
Q2055			DTC144WU	TRANSISTOR
			or PDTA144WU	TRANSISTOR
			or RN1309	TRANSISTOR
			or UN521E	TRANSISTOR
Q2061			2SC4081/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
			or 2SD1819A/QRS/-X	TRANSISTOR
Q2062			2SA1576A/QR/-X	TRANSISTOR
			or 2SB1218A/QR/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
Q2063			DTC144WU	TRANSISTOR
			or PDTA144WU	TRANSISTOR
			or UN521E	TRANSISTOR
			or RN1309	TRANSISTOR
Q2151			2SC4081/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
			or 2SD1819A/QRS/-X	TRANSISTOR
Q2152			DTA144WU	TRANSISTOR
			or PDTA144WU	TRANSISTOR
			or RN2309	TRANSISTOR
			or UN511E	TRANSISTOR
Q2201			2SC4081/QRS/-X	TRANSISTOR
			or 2SD1819A/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
Q2202			2SC4081/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
			or 2SD1819A/QRS/-X	TRANSISTOR
Q2203			DTA144WU	TRANSISTOR
			or PDTA144WU	TRANSISTOR

#	△	REF No.	PART No.	PART NAME, DESCRIPTION
			or UN511E	TRANSISTOR
			or RN2309	TRANSISTOR
Q2204			DTC144WU	TRANSISTOR
			or PDTA144WU	TRANSISTOR
			or UN521E	TRANSISTOR
			or RN1309	TRANSISTOR
Q2253			DTC114EU	TRANSISTOR
			or PDTA114EU	TRANSISTOR
			or RN1302	TRANSISTOR
			or UN5211	TRANSISTOR
Q2255			DTC144WU	TRANSISTOR
			or PDTA144WU	TRANSISTOR
			or RN1309	TRANSISTOR
			or UN521E	TRANSISTOR
Q2256			DTC144WU	TRANSISTOR
			or PDTA144WU	TRANSISTOR
			or UN521E	TRANSISTOR
			or RN1309	TRANSISTOR
Q2258			DTA144WU	TRANSISTOR
			or PDTA144WU	TRANSISTOR
			or UN511E	TRANSISTOR
			or RN2309	TRANSISTOR
Q3001			2SD1819A/QRS/-X	TRANSISTOR
			or 2SC4081/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
Q3002			PTZ-NV16	PHOTO TRANSISTOR
Q3003			PTZ-NV16	PHOTO TRANSISTOR
Q3004			2SD1819A/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
			or 2SC4081/QRS/-X	TRANSISTOR
Q3005			2SC1740S/QRS/-T	TRANSISTOR
			or 2SC3199/YG/-T	TRANSISTOR
Q3008			UN521E	TRANSISTOR
			or RN1309	TRANSISTOR
			or DTC144WU	TRANSISTOR
			or PDTA144WU	TRANSISTOR
Q4001			UN5211	TRANSISTOR
			or RN1302	TRANSISTOR
			or DTC114EU	TRANSISTOR
			or PDTA114EU	TRANSISTOR
Q5101			2SK2632-CB14	POWER MOS FET
			or 2SK2632	POWER MOS FET
			or 2SK2129	POWER MOS FET
			or 2SK2129-LT	POWER MOS FET
Q5102			2SD2144S/UV/-T	TRANSISTOR
Q5301			2SB1256	TRANSISTOR
Q5302			DTC114TU	TRANSISTOR
			or PDTA114TU	TRANSISTOR
			or RN1311	TRANSISTOR
			or UN5215	TRANSISTOR
Q5303			2SD2144S/UVW/-T	TRANSISTOR
Q5304			2SD1450/ST/-T	TRANSISTOR
			or 2SD1302/ST/-T	TRANSISTOR
Q5305			UN5111	TRANSISTOR
			or RN2302	TRANSISTOR
			or DTA114EU	TRANSISTOR
			or PDTA114EU	TRANSISTOR
Q5306			2SB1256	TRANSISTOR
Q5310			UN5211	TRANSISTOR
			or RN1302	TRANSISTOR
			or DTC114EU	TRANSISTOR

#	△	REF No.	PART No.	PART NAME, DESCRIPTION
			or PDTA114EU	TRANSISTOR
Q5311			2SA1576A/RS/-X	TRANSISTOR
			or 2SB1218A/RS/-X	TRANSISTOR
Q5312			2SA1745/6-7/-X	TRANSISTOR
Q6030			2SB1218A/RS/-X	TRANSISTOR
Q6031			UN5211	TRANSISTOR
			or RN1302	TRANSISTOR
			or PDTA114EU	TRANSISTOR
			or DTC114EU	TRANSISTOR
Q6032			UN5211	TRANSISTOR
			or RN1302	TRANSISTOR
			or PDTA114EU	TRANSISTOR
			or DTC114EU	TRANSISTOR
D16			DA204U	DIODE
D17			DA204U	DIODE
D24			DA204U	DIODE
D201			NRSA02J-152X	MG RESISTOR 1.5kΩ, 1/10W
D202			NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W
D203			NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W
D2001			1SS133	DIODE
			or 1N4148M	DIODE
D2201			11ES2	DIODE
D3001			LNB2301L01VI	LE DIODE
D3002			1SS133	DIODE
D3003			RD39ES/B3/-T2	ZENER DIODE
			or MTZJ39C	ZENER DIODE
D3004			11E2-T5	DIODE
D3005			11E2-T5	DIODE
D3008			1SS355	DIODE
D3011			1SS133	DIODE
D3012			1SS133	DIODE
D4001			1SS355	DIODE
D4002			1SS355	DIODE
D5001			S1WB(A)60F4102	BRIDGE DIODE
			or S1WB(A)60F4072X	BRIDGE DIODE
			or S1WB(A)60F4062X	BRIDGE DIODE
D5101			AU01	FR DIODE
			or ERA18-04-T2	FR DIODE
			or 1SR153-400-T2	FR DIODE
			or 10ELS4	FR DIODE
			or PG104RS	FR DIODE
D5102			AU01	FR DIODE
			or PG104RS	FR DIODE
			or 10ELS4	FR DIODE
			or ERA18-04-T2	FR DIODE
			or 1SR153-400-T2	FR DIODE
D5103			1SS133	DIODE
D5105			1SS133	DIODE
D5201			AK04	DIODE
			or 1S4	SB DIODE
			or 11EQS04	SB DIODE
D5202			FML-12S	FR DIODE
			or MA644	FR DIODE
			or YG901C2	FR DIODE
			or FCF06A20	FR DIODE
D5206			FMB-24	BARRIER DIODE
			or FSQ05A04B	SB DIODE
			or MA7D49	SB DIODE
			or YG801C04	SB DIODE
D5209			ERA18-02-T2	FR DIODE
			or PG104RS	FR DIODE

# Δ REF No.	PART No.	PART NAME, DESCRIPTION
R3211	NRSA02J-273X	MG RESISTOR 27kΩ, 1/10W
R3212	QRE141J-474Y	RESISTOR 470kΩ, 1/4W
R3213	NRSA02J-334X	MG RESISTOR 330kΩ, 1/10W
R3214	NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
R3215	NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
R3216	NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
R3217	NRSA02J-562X	MG RESISTOR 5.6kΩ, 1/10W
R3218	NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W
R3219	NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W
R3220	NRSA02J-104X	MG RESISTOR 100kΩ, 1/10W
R3222	NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W
R3223	NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W
R3224	NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W
R3225	NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
R3229	NRSA02J-105X	MG RESISTOR 1MΩ, 1/10W
R3230	NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W
R3231	NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R3233	NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
R3234	NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
R3235	NRSA02J-332X	MG RESISTOR 3.3kΩ, 1/10W
R3236	NRSA02J-332X	MG RESISTOR 3.3kΩ, 1/10W
R3237	NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
R3238	NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
R3239	NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
R3240	NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
R3241	NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
R3242	NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W
R3244	NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
R3251	NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
R4001	NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W
R4003	NRSA02J-561X	MG RESISTOR 560Ω, 1/10W
R4004	NRSA02J-561X	MG RESISTOR 560Ω, 1/10W
R4005	NRSA02J-562X	MG RESISTOR 5.6kΩ, 1/10W
R4006	NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W
R4007	NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R4008	NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R4009	NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R4010	NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R4011	NRSA02J-392X	MG RESISTOR 3.9kΩ, 1/10W
R4012	NRSA02J-222X	MG RESISTOR 2.2kΩ, 1/10W
R4013	NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R4014	NRSA02J-222X	MG RESISTOR 2.2kΩ, 1/10W
R4015	NRSA02J-223X	MG RESISTOR 22kΩ, 1/10W
R4016	NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
R4017	NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R4018	NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R4019	NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
R4020	NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
R4021	NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
R5101	QRE141J-334Y	RESISTOR 330kΩ, 1/4W
R5102	QRE141J-334Y	RESISTOR 330kΩ, 1/4W
R5103	QRE141J-683Y	RESISTOR 68kΩ, 1/4W
R5104	QRG029J-154G	OMF RESISTOR 150kΩ, 2W
R5106	QRT010J-R39X	MF RESISTOR 0.39Ω, 1W
R5107	QRE121J-331Y	RESISTOR 330Ω, 1/2W
R5108	QRE141J-221Y	RESISTOR 2.2kΩ, 1/4W
R5109	NRSA02J-682X	MG RESISTOR 680Ω, 1/10W
R5110	NRSA02J-224X	MG RESISTOR 220kΩ, 1/10W
R5111	NRSA02J-821X	MG RESISTOR 820Ω, 1/10W
R5112	NRSA02J-821X	MG RESISTOR 820Ω, 1/10W
R5301	QRE141J-1R8Y	RESISTOR 1.8Ω, 1/4W

# Δ REF No.	PART No.	PART NAME, DESCRIPTION
R5302	NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R5303	NRSA02J-122X	MG RESISTOR 1.2kΩ, 1/10W
Δ R5304	QRZ9005-221X	FUSI RESISTOR 220Ω, 1/4W
R5305	QRE141J-471Y	RESISTOR 470Ω, 1/4W
R5306	NRSA02J-333X	MG RESISTOR 33kΩ, 1/10W
R5307	NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R5308	NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W
R5309	NRSA02J-222X	MG RESISTOR 2.2kΩ, 1/10W
R5310	NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W
R5311	NRSA02J-222X	MG RESISTOR 2.2kΩ, 1/10W
R5312	NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W
R5313	QRE141J-222Y	RESISTOR 2.2kΩ, 1/4W
R5314	NRSA02J-222X	MG RESISTOR 2.2kΩ, 1/10W
R5317	NRSA02J-273X	MG RESISTOR 27kΩ, 1/10W
R5318	NRSA02J-273X	MG RESISTOR 27kΩ, 1/10W
R5319	QRE141J-511Y	RESISTOR 510Ω, 1/4W
R5320	NRSA02J-471X	MG RESISTOR 470Ω, 1/10W
R5321	NRSA02J-221X	MG RESISTOR 220Ω, 1/10W
R5322	NRSA02J-473X	MG RESISTOR 47kΩ, 1/10W
R5323	QRE141J-473Y	RESISTOR 47kΩ, 1/4W
R5324	QRE141J-102Y	RESISTOR 1kΩ, 1/4W
R5331	NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W
R6020	NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W
R6021	NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W
R6022	NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W
R6023	NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W
R6030	NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R6031	NRSA02J-271X	MG RESISTOR 270Ω, 1/10W
R6032	NRSA02J-392X	MG RESISTOR 3.9kΩ, 1/10W
R6033	NRSA02J-182X	MG RESISTOR 1.8kΩ, 1/10W
R6050	NRSA02J-101X	MG RESISTOR 100Ω, 1/10W
R6051	NRSA02J-101X	MG RESISTOR 100Ω, 1/10W
R6052	NRSA02J-101X	MG RESISTOR 100Ω, 1/10W
R6082	NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
R6508	NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W
R6510	NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W
R6553	QRE141J-0R0Y	RESISTOR 0Ω, 1/4W
R6554	NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W
R7530	NRSA02J-750X	MG RESISTOR 75Ω, 1/10W
VR2251	QVP0039-473Z	TRIM RESISTOR, A REC.FM
C1	QEKJ1CM-106	E CAPACITOR 10μF, 16V
C3	NCB21HK-103X	CAPACITOR 0.01μF, 50V
C5	NCB21HK-103X	CAPACITOR 0.01μF, 50V
C6	NCB21EK-104X	CAPACITOR 0.1μF, 25V
C7	QETN1CM-107	E CAPACITOR 100μF, 16V
C9	NCB21HK-103X	CAPACITOR 0.01μF, 50V
C11	NCB21HK-103X	CAPACITOR 0.01μF, 50V
C12	NCB21EK-473X	CAPACITOR 0.047μF, 25V
C13	QERF1HM-335	E CAPACITOR 3.3μF, 50V
C14	NCB21EK-333X	CAPACITOR 0.033μF, 25V
C16	NCF21CZ-105X	CAPACITOR 1μF, 16V
C19	NDC21HJ-470X	CAPACITOR 47pF, 50V
C20	QEKJ1HM-225	E CAPACITOR 2.2μF, 50V
C21	NCB21CK-563X	CAPACITOR 0.056μF, 16V
C23	NCB21HK-223X	CAPACITOR 0.022μF, 50V
C24	NCB21CK-474X	CAPACITOR 0.47μF, 16V
C25	NCB21EK-104X	CAPACITOR 0.1μF, 25V
C27	NDC21HJ-101X	CAPACITOR 100pF, 50V
C29	QEKJ1EM-475	E CAPACITOR 4.7μF, 25V
C30	QEKJ1EM-475	E CAPACITOR 4.7μF, 25V
C31	NCB21HK-223X	CAPACITOR 0.022μF, 50V

# Δ REF No.	PART No.	PART NAME, DESCRIPTION
C32	NCB21HK-103X	CAPACITOR 0.01μF, 50V
C34	QVFV1HJ-104Z	F CAPACITOR 0.1μF, 50V
C37	QEKJ1CM-476	E CAPACITOR 47μF, 16V
C41	NCB21EK-104X	CAPACITOR 0.1μF, 25V
C42	NCB21HK-103X	CAPACITOR 0.01μF, 50V
C43	NCB21HK-103X	CAPACITOR 0.01μF, 50V
C45	NCB21EK-104X	CAPACITOR 0.1μF, 25V
C46	NDC21HJ-101X	CAPACITOR 100pF, 50V
C47	NCB21EK-104X	CAPACITOR 0.1μF, 25V
C48	QEKJ0JM-476	E CAPACITOR 47μF, 6.3V
C49	NDC21HJ-221X	CAPACITOR 220pF, 50V
C54	QEKJ1CM-106	E CAPACITOR 10μF, 16V
C55	QEKJ1CM-106	E CAPACITOR 10μF, 16V
C56	QEKJ1HM-335	E CAPACITOR 3.3μF, 50V
C57	NCB21EK-104X	CAPACITOR 0.1μF, 25V
C58	NCB21EK-104X	CAPACITOR 0.1μF, 25V
C59	NCB21EK-473X	CAPACITOR 0.047μF, 25V
C62	NCB21EK-104X	CAPACITOR 0.1μF, 25V
C63	NDC21HG-151X	CAPACITOR 150pF, 50V
C64	QEKJ0JM-227	E CAPACITOR 220μF, 6.3V
C65	NCB21EK-104X	CAPACITOR 0.1μF, 25V
C73	NCB21HK-103X	CAPACITOR 0.01μF, 50V
C74	NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W
C76	NCB21HK-103X	CAPACITOR 0.01μF, 50V
C77	NDC21HJ-270X	CAPACITOR 27pF, 50V
C79	NDC21HJ-120X	CAPACITOR 12pF, 50V
C85	NCB21HK-103X	CAPACITOR 0.01μF, 50V
C86	QEKJ1CM-476	E CAPACITOR 47μF, 16V
C87	NCB21HK-103X	CAPACITOR 0.01μF, 50V
C88	NCB21HK-103X	CAPACITOR 0.01μF, 50V
C89	NCB21HK-103X	CAPACITOR 0.01μF, 50V
C90	NCB21HK-103X	CAPACITOR 0.01μF, 50V
C91	NCB21EK-104X	CAPACITOR 0.1μF, 25V
C92	NRSA02J-682X	MG RESISTOR 6.8kΩ, 1/10W
C98	NCF21CZ-105X	CAPACITOR 1μF, 16V
C107	NDC21HJ-6R0X	CAPACITOR 5pF, 50V
C134	NCB21EK-104X	CAPACITOR 0.1μF, 25V
C141	NCB21EK-104X	CAPACITOR 0.1μF, 25V
C164	NCB21HK-103X	CAPACITOR 0.01μF, 50V
C165	NCB21HK-103X	CAPACITOR 0.01μF, 50V
C201	QEKJ0JM-227	E CAPACITOR 220μF, 6.3V
C204	NDC21HJ-100X	CAPACITOR 10pF, 50V
C206	NDC21HJ-330X	CAPACITOR 33pF, 50V
C207	NDC21HJ-330X	CAPACITOR 33pF, 50V
C209	NCB21CK-474X	CAPACITOR 0.47μF, 16V
C212	NCB21EK-104X	CAPACITOR 0.1μF, 25V
C213	QEKJ1EM-475	E CAPACITOR 4.7μF, 25V
C214	NCB21CK-224X	CAPACITOR 0.22μF, 16V
C215	NCB21CK-224X	CAPACITOR 0.22μF, 16V
C216	QEKJ0JM-227	E CAPACITOR 220μF, 6.3V
C217	NDC21HJ-560X	CAPACITOR 56pF, 50V
C218	NCB21AK-105X	CAPACITOR 1μF, 10V
C222	NCB21AK-105X	CAPACITOR 1μF, 10V
C2002	QEKJ1CM-476	E CAPACITOR 47μF, 16V
C2003	NCB21HK-123X	CAPACITOR 0.012μF, 50V
C2004	QEKJ1CM-226	E CAPACITOR 22μF, 16V
C2005	NCB21HK-102X	CAPACITOR 0.001μF, 50V
C2006	NCB21HK-331X	CAPACITOR 330pF, 50V
C2007	QEKJ1CM-106	E CAPACITOR 10μF, 16V
C2008	NCB21HK-152X	CAPACITOR 0.0015μF, 50V
C2009	QEKJ1EM-475	E CAPACITOR 4.7μF, 25V

# Δ REF No.	PART No.	PART NAME, DESCRIPTION
C2010	QEKJ1EM-475	E CAPACITOR 4.7μF, 25V
C2011	NCB21EK-333X	CAPACITOR 0.033μF, 25V
C2013	NCB21EK-333X	CAPACITOR 0.033μF, 25V
C2015	QEKJ1CM-226	E CAPACITOR 22μF, 16V
C2016	QEKJ1EM-475	E CAPACITOR 4.7μF, 25V
C2051	NCB21HK-331X	CAPACITOR 330pF, 50V
C2052	QFLC1HJ-333Z	F CAPACITOR 0.033μF, 50V
C2053	NCB21HK-332X	CAPACITOR 0.0033μF, 50V
C2054	NCB21HK-103X	CAPACITOR 0.01μF, 50V
C2055	QEKJ1CM-106	E CAPACITOR 10μF, 16V
C2061	QFLC1HJ-333Z	F CAPACITOR 0.033μF, 50V
C2062	NCB21HK-332X	CAPACITOR 0.0033μF, 50V
C2063	NCB21HK-103X	CAPACITOR 0.01μF, 50V
C2064	QEKJ1CM-106	E CAPACITOR 10μF, 16V
C2151	NDC21HJ-101X	CAPACITOR 100pF, 50V
C2152	NCB21HK-103X	CAPACITOR 0.01μF, 50V
C2201	QEKJ1HM-104	E CAPACITOR 0.1μF, 50V
C2202	QEKJ1HM-104	E CAPACITOR 0.1μF, 50V
C2204	QEKJ1CM-226	E CAPACITOR 22μF, 16V
C2205	QEKJ1EM-475	E CAPACITOR 4.7μF, 25V
C2206	QEKJ1EM-475	E CAPACITOR 4.7μF, 25V
C2207	QEKJ0JM-476	E CAPACITOR 47μF, 6.3V
C2208	QEKJ1CM-106	E CAPACITOR 10μF, 16V
C2209	QEKJ1CM-106	E CAPACITOR 10μF, 16V
C2210	QEKJ1CM-106	E CAPACITOR 10μF, 16V
C2211	QEKJ1CM-106	E CAPACITOR 10μF, 16V
C2212	QEKJ0JM-476	E CAPACITOR 47μF, 6.3V
C2213	QERF0JM-476	E CAPACITOR 47μF, 6.3V
C2214	NCB21HK-103X	CAPACITOR 0.01μF, 50V
C2215	QEKJ1CM-106	E CAPACITOR 10μF, 16V
C2216	QEKJ1HM-105	E CAPACITOR 1μF, 50V
C2217	QEKJ1HM-105	E CAPACITOR 1μF, 50V
C2218	QEKJ1CM-106	E CAPACITOR 10μF, 16V
C2219	QEKJ1CM-106	E CAPACITOR 10μF, 16V
C2220	QEKJ1CM-476	E CAPACITOR 47μF, 16V
C2221	QEKJ1CM-106	E CAPACITOR 10μF, 16V
C2222	QEKJ1CM-226	E CAPACITOR 22μF, 16V
C2225	QEKJ1HM-224	E CAPACITOR 0.22μF, 50V
C2226	QEKJ1CM-106	E CAPACITOR 10μF, 16V
C2227	QEKJ1CM-106	E CAPACITOR 10μF, 16V
C2230	NCB21CK-473X	CAPACITOR 0.047μF, 16V
C2231	NCB21HK-153X	CAPACITOR 0.015μF, 50V
C2232	QEKJ1HM-224	E CAPACITOR 0.22μF, 50V
C2233	NCB21HK-153X	CAPACITOR 0.015μF, 50V
C2234	NCB21CK-473X	CAPACITOR 0.047μF, 16V
C2251	NCB21EK-104X	CAPACITOR 0.1μF, 25V
C2252	NCB21HK-222X	CAPACITOR 0.0022μF, 50V
C2253	NCB21HK-222X	CAPACITOR 0.0022μF, 50V
C2256	NCF21EZ-104X	CAPACITOR 0.1μF, 25V
C2257	QERF0JM-476	E CAPACITOR 47μF, 6.3V
C2258	NCB21EK-104X	CAPACITOR 0.1μF, 25V
C2259	NCB21EK-104X	CAPACITOR 0.1μF, 25V
C2260	NDC21HJ-181X	CAPACITOR 180pF, 50V
C2261	NCB21HK-103X	CAPACITOR 0.01μF, 50V
C3002	NCB21HK-103X	CAPACITOR 0.01μF, 50V
C3003	QEKJ1HM-106	E CAPACITOR 10μF, 50V
C3004	NCB21EK-104X	CAPACITOR 0.1μF, 25V
C3010	QEZ0244-229	EDL CAPACITOR 0.0022F
C3012	QEKJ0JM-107	E CAPACITOR 100μF, 6.3V
C3013	NCB21HK-103X	CAPACITOR 0.01μF, 50V
C3014	NBE20JM-226X	T CAPACITOR 22μF, 6.3V

#	△ REF No.	PART No.	PART NAME, DESCRIPTION
C3016		NCB21EK-104X	CAPACITOR 0.1μF,25V
C3019		NDC21HJ-101X	CAPACITOR 100pF,50V
C3020		NDC21HJ-101X	CAPACITOR 100pF,50V
C3021		NDC21HJ-101X	CAPACITOR 100pF,50V
C3022		NCB21EK-104X	CAPACITOR 0.1μF,25V
C3023		NBE20JM-106X	T CAPACITOR 10μF,6.3V
C3024		NDC21HJ-220X	CAPACITOR 22pF,50V
C3025		QAT3725-300Z	TRIM CAPACITOR,TIMER CLOCK
C3026		NCB21HK-103X	CAPACITOR 0.01μF,50V
C3027		NBE20JM-106X	T CAPACITOR 10μF,6.3V
C3028		NDC21HJ-101X	CAPACITOR 100pF,50V
C3029		NDC21HJ-101X	CAPACITOR 100pF,50V
C3030		NBE20JM-226X	T CAPACITOR 22μF,6.3V
C3031		NCB21EK-104X	CAPACITOR 0.1μF,25V
C3032		NCB21EK-104X	CAPACITOR 0.1μF,25V
C3033		NCB21EK-104X	CAPACITOR 0.1μF,25V
C3036		NDC21HJ-180X	CAPACITOR 18pF,50V
C3037		NDC21HJ-120X	CAPACITOR 12pF,50V
C3038		NDC21HJ-101X	CAPACITOR 100pF,50V
C3039		NDC21HJ-101X	CAPACITOR 100pF,50V
C3040		NCF21CZ-105X	CAPACITOR 1μF,16V
C3042		QETJ0JM-477	E CAPACITOR 470pF,6.3V
C4001		NBE20JM-226X	T CAPACITOR 22μF,6.3V
C4002		NCB21EK-104X	CAPACITOR 0.1μF,25V
C4003		NCB21HK-102X	CAPACITOR 0.001μF,50V
C4004		NBE20JM-226X	T CAPACITOR 22μF,6.3V
C4005		NCB21HK-222X	CAPACITOR 0.0022μF,50V
C4006		NBE40JM-476X	T CAPACITOR 47μF,6.3V
C4007		NCB21HK-561X	CAPACITOR 560pF,50V
C4008		NCB21AK-105X	CAPACITOR 1μF,10V
C4009		NCB21HK-563X	CAPACITOR 0.056μF,50V
C4010		NCB21EK-223X	CAPACITOR 0.022μF,25V
C4011		NCB21EK-104X	CAPACITOR 0.1μF,25V
C4012		NCB21EK-224X	CAPACITOR 0.22μF,25V
C4013		NCB21HK-563X	CAPACITOR 0.056μF,50V
C4014		NDC21HJ-101X	CAPACITOR 100pF,50V
C4015		NCB21HJ-102X	CAPACITOR 0.001μF,50V
△ C5001		QFZ9051-683	F CAPACITOR 0.068μF,250V
△ C5002		QFZ9051-333	F CAPACITOR 0.033μF,250V
△ C5005		QCZ9071-222	CAPACITOR 0.0022μF,250V
C5006		QEZ0375-686	E CAPACITOR 68μF,400V
C5101		QCZ0212-472	CAPACITOR 0.0047μF,1kV
C5102		QCZ0302-330Z	CAPACITOR 33pF,1kV
C5104		QETN1HM-105	E CAPACITOR 1μF,50V
C5105		QFN31HJ-183	F CAPACITOR 0.018μF,50V
C5106		QCB81HJ-271	CAPACITOR 270pF,50V
C5107		QFV91HJ-104	F CAPACITOR 0.1μF,50V
C5110		QCZ0302-330Z	CAPACITOR 33pF,1kV
C5201		QEMU0JM-227	E CAPACITOR 220μF,6.3V
C5202		QEMT1CM-228	E CAPACITOR 1200μF,16V
C5203		QEMT1AM-228	E CAPACITOR 2200μF,10V
C5204		QETN2AM-475	E CAPACITOR 4.7μF,100V
C5205		QETN1HM-106	E CAPACITOR 10μF,50V
C5206		QEMU1EM-187	E CAPACITOR 180μF,25V
C5207		QETN1CM-227	E CAPACITOR 220μF,16V
C5208		QETN1AM-227	E CAPACITOR 220μF,10V
C5301		QEMU0JM-227	E CAPACITOR 220μF,6.3V
C5302		QEK1CM-106	E CAPACITOR 10μF,16V
C5303		QETN1CM-107	E CAPACITOR 100μF,16V
C5304		QFLC1HJ-183Z	F CAPACITOR 0.018μF,50V
C5305		NCB21HK-103X	CAPACITOR 0.01μF,50V

#	△ REF No.	PART No.	PART NAME, DESCRIPTION
C5306		QETN1AM-107	E CAPACITOR 100μF,10V
C5307		QETN1CM-226	E CAPACITOR 22μF,16V
C5308		QETN1EM-476	E CAPACITOR 47μF,25V
C5309		QETN1CM-107	E CAPACITOR 100μF,16V
C5310		QEKJ1HM-105	E CAPACITOR 1μF,50V
C6006		NCB21HK-103X	CAPACITOR 0.01μF,50V
C6007		QETN1AM-337	E CAPACITOR 330pF,10V
C6008		NCB21HK-103X	CAPACITOR 0.01μF,50V
C6012		QEKJ1CM-476	E CAPACITOR 47μF,16V
C6013		NCB21HK-103X	CAPACITOR 0.01μF,50V
C6014		NCB21HK-103X	CAPACITOR 0.01μF,50V
C6016		NCB21HK-103X	CAPACITOR 0.01μF,50V
C6020		NDC21HJ-101X	CAPACITOR 100pF,50V
C6021		NDC21HJ-101X	CAPACITOR 100pF,50V
C6022		NDC21HJ-101X	CAPACITOR 100pF,50V
C6032		NCB21HK-473X	CAPACITOR 0.047μF,50V
C6033		NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W
C6037		QEKJ1HM-106	E CAPACITOR 10μF,50V
C6055		NDC21HJ-220X	CAPACITOR 22pF,50V
L1		QQL29BJ-100Z	COIL 10μH
L3		QQL071J-6R8Y	COIL 6.8μH
L4		QQL29BJ-100Z	COIL 10μH
L7		QQL29BJ-100Z	COIL 10μH
L9		QQL29BJ-100Z	COIL 10μH
L12		QQL071J-330Y	COIL 33μH
L13		QQL071J-120Y	COIL 12μH
L14		QQL071J-820Y	COIL 82μH
L16		QQL29BJ-100Z	COIL 10μH
L18		QQR0967-001	COIL 12μH
L201		QQL29BK-1R0Z	COIL 1μH
L202		QQL071J-330Y	COIL 33μH
L203		QQL071J-220Y	COIL 22μH
L204		QQL29BJ-100Z	COIL 10μH
L206		QQL071J-220Y	COIL 22μH
L2251		QQL29BJ-100Z	COIL 10μH
L2252		QQL29BJ-151Z	COIL 150μH
L3011		NQL03BK-330X	COIL 33μH
L3012		NQL03BK-330X	COIL 33μH
L5201		PELN1184	COIL 33μH
L5202		PU60944-330K	COIL 33μH
L6002		QQL29BJ-100Z	COIL 10μH
L6004		QQL29BJ-100Z	COIL 10μH
L6031		QQL29BK-1R0Z	COIL 1μH
X1		QAX0530-001	CRYSTAL RESONATOR
X3001		QAX0445-001	CRYSTAL RESONATOR
X3002		QAX0527-001	CRYSTAL RESONATOR
S3002		QSW0695-001	PUSH SWITCH
K5101		QQR0678-001Z	FERRITE BEAD
PC3001		GP3S123	IC(PHOTO SENSOR
PC3002		GP3S123	IC(PHOTO SENSOR
△ PC5101		PC123F2	PH COUPLER
△ PC5301		PS2501-1	PH COUPLER
T2051		PELN0860	OSC TRANSFORMER
T2052		PELN0861	OSC TRANSFORMER
△ T5001		QSS0033-001	SW TRANSFORMER
TU8001		QAU0107-001	TUNER
ET1		PQ21623-1-5	EARTH PLATE(RF)
ET2		LP40547-001A	EARTH PLATE
SD1		LP30563-001B	SHIELD CASE(PRE/REC)
△ HS1		LP40515-001A	HEAT SINK,Q5101
HS2		LP40479-001B	HEAT SINK,IC5301

#	△ REF No.	PART No.	PART NAME, DESCRIPTION
OT1		QYTDST3010Z	SCREW,X2 TERMINAL BOARD
OT2		QYTDST3008Z	SCREW,Q5101
OT3		QYTDST3006Z	SCREW,IC5301
FC5001		QNG0006-001Z	FUSE CLIP,F5001
FC5002		QNG0006-001Z	FUSE CLIP,F5001
△ LF5001		PELN1204-01-01	LINE FILTER
△ LF5002		QQR0608-001	LINE FILTER
CN1		QGF1028C1-11	FPC CONNECTOR,(1-11)U.DRUM
CN2001		QGF1207C1-07	FPC CONNECTOR,(1-7)A/C HEAD
CN2002		QGB2532J1-02	CONNECTOR,(1-2)FE HEAD
CN3001		QGF1207C1-05	FPC CONNECTOR,(1-5)DRUM MDA
CN3002		QGB2532J1-02	CONNECTOR,(1-2)L.MOTOR
CN3003		QGB2015M2-08	CONNECTOR,(1-8)CAP.MOTOR
CN3004		QGB2534J2-04	CONNECTOR,(1-4)ROTARY ENCODER
CN3011		QGF1207C1-14	FPC CONNECTOR,(1-14)FRONT
CN3012		QGF1207C1-06	FPC CONNECTOR,(1-6)JOG
△ CN5001		QGA7901C3-02	CONNECTOR,(1-2)AC IN
CN7501		QGB2024K1-09S	CONNECTOR,(1-9)TERMINAL
CN7502		QGB2024K1-10S	CONNECTOR,(1-10)TERMINAL
CN7503		QGB2024K1-10S	CONNECTOR,(1-10)TERMINAL
CN7504		QGF1207C1-05	FPC CONNECTOR,(1-5)FRONT
△ CP4001		ICP-N15	CIRCUIT PROTECTOR
△ CP5301		ICP-N38	CIRCUIT PROTECTOR
△ CP5302		ICP-N25	CIRCUIT PROTECTOR
△ F5001		QMF51E2-2R0J1	FUSE T2.0A,AC250V

3D SVHS BOARD ASSEMBLY <05>

#	△ REF No.	PART No.	PART NAME, DESCRIPTION
PW1		LPA10033-10A	3D SVHS BOARD ASSY
IC1001		JCP8008	IC
IC1002		VC2076MP-XE	IC
IC1006		HA118092FP1	IC
IC1007		BA10358F-XE	IC
IC1401		JCP8010-2	IC(DIGITAL)
IC1402		MN47V77S-XE	IC
Q1004		DTC144WU	TRANSISTOR
		or RN1309	TRANSISTOR
		or UN521E	TRANSISTOR
Q1005		DTC144WU	TRANSISTOR
		or RN1309	TRANSISTOR
		or UN521E	TRANSISTOR
Q1006		2SA1576A/QR/-X	TRANSISTOR
		or 2SB1218A/QR/-X	TRANSISTOR
		or 2PA1576R/-X	TRANSISTOR
Q1007		2SC4081/QRS/-X	TRANSISTOR
		or 2PC4081R/-X	TRANSISTOR
		or 2SD1819A/QRS/-X	TRANSISTOR
Q1012		2SC4081/QRS/-X	TRANSISTOR
		or 2PC4081R/-X	TRANSISTOR
		or 2SD1819A/QRS/-X	TRANSISTOR
Q1014		2SC4081/QRS/-X	TRANSISTOR
		or 2SD1819A/QRS/-X	TRANSISTOR
		or 2PC4081R/-X	TRANSISTOR
Q1015		2SC4081/QRS/-X	TRANSISTOR
		or 2PC4081R/-X	TRANSISTOR
		or 2SD1819A/QRS/-X	TRANSISTOR

#	△ REF No.	PART No.	PART NAME, DESCRIPTION
Q1016		DTC144WU	TRANSISTOR
		or RN1309	TRANSISTOR
		or UN521E	TRANSISTOR
Q1021		2SA1576A/QR/-X	TRANSISTOR
		or 2SB1218A/QR/-X	TRANSISTOR
		or 2PA1576R/-X	TRANSISTOR
Q1022		DTC144WU	TRANSISTOR
		or RN1309	TRANSISTOR
		or UN521E	TRANSISTOR
Q1401		2SC1317/RS/-T	TRANSISTOR
Q1402		2SC4081/QRS/-X	TRANSISTOR
		or 2SD1819A/QRS/-X	TRANSISTOR
		or 2PC4081R/-X	TRANSISTOR
Q1403		2SC4081/QRS/-X	TRANSISTOR
		or 2PC4081R/-X	TRANSISTOR
		or 2SD1819A/QRS/-X	TRANSISTOR
Q1404		2SC4081/S/-X	TRANSISTOR
		or 2SD1819A/QRS/-X	TRANSISTOR
		or 2PC4081R/-X	TRANSISTOR
Q1405		2SC4081/QRS/-X	TRANSISTOR
		or 2PC4081R/-X	TRANSISTOR
		or 2SD1819A/QRS/-X	TRANSISTOR
Q1406		2SA1576A/QR/-X	TRANSISTOR
		or 2SB1218A/QR/-X	TRANSISTOR
		or 2PA1576R/-X	TRANSISTOR
Q1407		2SA1576A/QR/-X	TRANSISTOR
		or 2PA1576R/-X	TRANSISTOR
		or 2SB1218A/QR/-X	TRANSISTOR
Q1408		2SA1576A/QR/-X	TRANSISTOR
		or 2SB1218A/QR/-X	TRANSISTOR
		or 2PA1576R/-X	TRANSISTOR
Q1409		2SA1576A/QR/-X	TRANSISTOR
		or 2PA1576R/-X	TRANSISTOR
		or 2SB1218A/QR/-X	TRANSISTOR
Q1410		2SC4081/QRS/-X	TRANSISTOR
		or 2SD1819A/QRS/-X	TRANSISTOR
		or 2PC4081R/-X	TRANSISTOR
Q1411		2SA1576A/QR/-X	TRANSISTOR
		or 2PA1576R/-X	TRANSISTOR
		or 2SB1218A/QR/-X	TRANSISTOR
Q1412		DTC144WU	TRANSISTOR
		or RN1309	TRANSISTOR
		or UN521E	TRANSISTOR
Q1413		DTC144WU	TRANSISTOR
		or RN1309	TRANSISTOR
		or UN521E	TRANSISTOR
Q1414		DTC144WU	TRANSISTOR
		or RN1309	TRANSISTOR
		or UN521E	TRANSISTOR
Q1416		DTC144WU	TRANSISTOR
		or RN1309	TRANSISTOR
		or UN521E	TRANSISTOR
Q1417		2SC4081/QRS/-X	TRANSISTOR
		or 2SD1819A/QRS/-X	TRANSISTOR
		or 2PC4081R/-X	TRANSISTOR
Q1418		2SC4081/QRS/-X	TRANSISTOR
		or 2PC4081R/-X	TRANSISTOR
		or 2SD1819A/QRS/-X	TRANSISTOR
D1002		1SS133	DIODE
		or 1N4148M	DIODE
D1003		1SS133	DIODE

#	Δ REF No.	PART No.	PART NAME, DESCRIPTION
		or 1N4148M	DIODE
D1004		1SS133	DIODE
		or 1N4148M	DIODE
D1006		1SS133	DIODE
		or 1N4148M	DIODE
D1401		RD4.3ES/B2-T2	ZENER DIODE
		or MTZJ4.3B	ZENER DIODE
D1402		1SS133	DIODE
		or 1N4148M	DIODE
R1002		NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
R1003		NRSA02J-221X	MG RESISTOR 220Ω, 1/10W
R1004		NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W
R1008		NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
R1009		NRSA02J-125X	MG RESISTOR 1.2MΩ, 1/10W
R1010		NRVA02D-332X	CMF RESISTOR 3.3kΩ, 1/10W
R1011		NRVA02D-332X	CMF RESISTOR 3.3kΩ, 1/10W
R1012		NRVA02D-152X	CMF RESISTOR 1.5kΩ, 1/10W
R1013		NRVA02D-471X	CMF RESISTOR 470Ω, 1/10W
R1014		NRVA02D-102X	CMF RESISTOR 1kΩ, 1/10W
R1015		NRVA02D-102X	CMF RESISTOR 1kΩ, 1/10W
R1016		NRSA02J-122X	MG RESISTOR 1.2kΩ, 1/10W
R1017		NRSA02J-162X	MG RESISTOR 1.6kΩ, 1/10W
R1018		NRSA02J-151X	MG RESISTOR 150Ω, 1/10W
R1019		NRSA02J-391X	MG RESISTOR 390Ω, 1/10W
R1020		NRSA02J-332X	MG RESISTOR 3.3kΩ, 1/10W
R1021		NRSA02J-332X	MG RESISTOR 3.3kΩ, 1/10W
R1023		NRSA02J-272X	MG RESISTOR 2.7kΩ, 1/10W
R1025		NRSA02J-823X	MG RESISTOR 82kΩ, 1/10W
R1026		NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R1027		NRSA02J-561X	MG RESISTOR 560Ω, 1/10W
R1028		NRSA02J-561X	MG RESISTOR 560Ω, 1/10W
R1029		NRSA02J-473X	MG RESISTOR 47kΩ, 1/10W
R1030		NRSA02J-473X	MG RESISTOR 47kΩ, 1/10W
R1031		NRSA02J-562X	MG RESISTOR 5.6kΩ, 1/10W
R1032		NRSA02J-181X	MG RESISTOR 180Ω, 1/10W
R1035		NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W
R1037		NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W
R1038		NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
R1039		NRSA02J-394X	MG RESISTOR 390kΩ, 1/10W
R1045		NRSA02J-272X	MG RESISTOR 2.7kΩ, 1/10W
R1046		NRSA02J-273X	MG RESISTOR 27kΩ, 1/10W
R1047		NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
R1048		NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
R1049		NRSA02J-475X	MG RESISTOR 4.7MΩ, 1/10W
R1053		NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R1054		NRSA02J-221X	MG RESISTOR 220Ω, 1/10W
R1055		NRVA02D-563X	CMF RESISTOR 56kΩ, 1/10W
R1056		NRVA02D-224X	CMF RESISTOR 220kΩ, 1/10W
R1058		NRSA02J-273X	MG RESISTOR 27kΩ, 1/10W
R1059		NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W
R1060		NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W
R1063		NRSA02J-152X	MG RESISTOR 1.5kΩ, 1/10W
R1064		NRSA02J-332X	MG RESISTOR 3.3kΩ, 1/10W
R1065		NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R1066		NRSA02J-272X	MG RESISTOR 2.7kΩ, 1/10W
R1067		NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R1068		NRSA02J-361X	MG RESISTOR 360Ω, 1/10W
R1069		NRSA02J-471X	MG RESISTOR 470Ω, 1/10W
R1070		NRSA02J-391X	MG RESISTOR 390Ω, 1/10W
R1071		NRSA02J-104X	MG RESISTOR 100kΩ, 1/10W
R1072		NRSA02J-682X	MG RESISTOR 6.8kΩ, 1/10W

#	Δ REF No.	PART No.	PART NAME, DESCRIPTION
R1073		NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W
R1401		NRSA02J-331X	MG RESISTOR 330Ω, 1/10W
R1402		NRSA02J-101X	MG RESISTOR 100Ω, 1/10W
R1403		NRSA02J-223X	MG RESISTOR 22kΩ, 1/10W
R1404		NRSA02J-123X	MG RESISTOR 12kΩ, 1/10W
R1405		NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R1406		NRSA02J-471X	MG RESISTOR 470Ω, 1/10W
R1407		NRSA02J-821X	MG RESISTOR 820Ω, 1/10W
R1408		NRSA02J-222X	MG RESISTOR 2.2kΩ, 1/10W
R1409		NRSA02J-681X	MG RESISTOR 680Ω, 1/10W
R1410		NRSA02J-223X	MG RESISTOR 22kΩ, 1/10W
R1411		NRSA02J-243X	MG RESISTOR 24kΩ, 1/10W
R1412		NRSA02J-104X	MG RESISTOR 100kΩ, 1/10W
R1413		NRSA02J-471X	MG RESISTOR 470Ω, 1/10W
R1414		NRSA02J-331X	MG RESISTOR 330Ω, 1/10W
R1415		NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R1416		NRSA02J-471X	MG RESISTOR 470Ω, 1/10W
R1417		NRSA02J-821X	MG RESISTOR 820Ω, 1/10W
R1418		NRSA02J-471X	MG RESISTOR 470Ω, 1/10W
R1419		NRSA02J-221X	MG RESISTOR 220Ω, 1/10W
R1420		NRSA02J-152X	MG RESISTOR 1.5kΩ, 1/10W
R1422		NRSA02J-391X	MG RESISTOR 390Ω, 1/10W
R1423		NRSA02J-821X	MG RESISTOR 820Ω, 1/10W
R1425		NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R1428		NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W
R1429		NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W
R1430		NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W
R1431		NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W
R1432		NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W
R1433		NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W
R1434		NRSA02J-473X	MG RESISTOR 47kΩ, 1/10W
R1435		NRSA02J-242X	MG RESISTOR 2.4kΩ, 1/10W
R1436		NRSA02J-153X	MG RESISTOR 15kΩ, 1/10W
R1437		NRSA02J-123X	MG RESISTOR 12kΩ, 1/10W
R1438		NRSA02J-821X	MG RESISTOR 820Ω, 1/10W
R1439		NRSA02J-101X	MG RESISTOR 100Ω, 1/10W
R1440		NRSA02J-223X	MG RESISTOR 22kΩ, 1/10W
R1442		NRSA02J-223X	MG RESISTOR 22kΩ, 1/10W
R1443		NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W
R1444		NRSA02J-221X	MG RESISTOR 220Ω, 1/10W
R1445		NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R1446		NRSA02J-222X	MG RESISTOR 2.2kΩ, 1/10W
R1447		NRSA02J-152X	MG RESISTOR 1.5kΩ, 1/10W
R1448		NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
R1449		NRSA02J-470X	MG RESISTOR 47Ω, 1/10W
R1451		NRSA02J-681X	MG RESISTOR 680Ω, 1/10W
R1452		NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R1454		NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R1455		NRSA02J-471X	MG RESISTOR 470Ω, 1/10W
R1456		NRSA02J-471X	MG RESISTOR 470Ω, 1/10W
R1457		NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R1458		NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R1459		NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R1460		NRSA02J-104X	MG RESISTOR 100kΩ, 1/10W
R1461		NRSA02J-182X	MG RESISTOR 1.8kΩ, 1/10W
R1462		NRSA02J-272X	MG RESISTOR 2.7kΩ, 1/10W
R1463		NRSA02J-682X	MG RESISTOR 6.8kΩ, 1/10W
R1465		NRSA02J-821X	MG RESISTOR 820Ω, 1/10W
R1467		NRSA02J-682X	MG RESISTOR 6.8kΩ, 1/10W
R1468		NRSA02J-162X	MG RESISTOR 1.6kΩ, 1/10W
R1470		NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W

#	Δ REF No.	PART No.	PART NAME, DESCRIPTION
R1471		NRSA02J-333X	MG RESISTOR 33kΩ, 1/10W
R1472		NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W
VR1002		QVZ3521-104Z	V RESISTOR,P,BURST LEVEL
VR1401		QVP0039-103Z	TRIM RESISTOR,D/A LEVEL
C1001		QEKJ0JM-476	E CAPACITOR 47μF,6.3V
C1002		QEKJ1HM-474	E CAPACITOR 0.47μF,50V
C1003		QEKJ1CM-106	E CAPACITOR 10μF,16V
C1005		QEKJ1EM-475	E CAPACITOR 4.7μF,25V
C1006		NCB21HK-103X	CAPACITOR 0.01μF,50V
C1007		NCF21EZ-104X	CAPACITOR 0.1μF,25V
C1010		NCF21EZ-104X	CAPACITOR 0.1μF,25V
C1011		NDC21HJ-150X	CAPACITOR 15pF,50V
C1013		NCF21EZ-104X	CAPACITOR 0.1μF,25V
C1014		QEKJ1HM-225	E CAPACITOR 2.2μF,50V
C1015		QEKJ1EM-475	E CAPACITOR 4.7μF,25V
C1016		QEKJ1HM-225	E CAPACITOR 2.2μF,50V
C1017		NCB21HK-103X	CAPACITOR 0.01μF,50V
C1019		NCB21HK-103X	CAPACITOR 0.01μF,50V
C1020		NCB21HK-103X	CAPACITOR 0.01μF,50V
C1021		NCB21HK-103X	CAPACITOR 0.01μF,50V
C1022		QEKJ1HM-105	E CAPACITOR 1μF,50V
C1023		QEKJ1HM-225	E CAPACITOR 2.2μF,50V
C1024		NCB21HK-103X	CAPACITOR 0.01μF,50V
C1026		NCF21EZ-104X	CAPACITOR 0.1μF,25V
C1027		NCF21EZ-104X	CAPACITOR 0.1μF,25V
C1028		QEKJ0JM-337	E CAPACITOR 330μF,6.3V
C1029		QEKJ1HM-104	E CAPACITOR 0.1μF,50V
C1030		QEKJ1HM-105	E CAPACITOR 1μF,50V
C1031		QEKJ1HM-225	E CAPACITOR 2.2μF,50V
C1033		QEKJ1HM-105	E CAPACITOR 1μF,50V
C1034		QEPF1HM-105	NP E CAPACITOR 1μF,50V
C1035		QEKJ1EM-475	E CAPACITOR 4.7μF,25V
C1036		QEKJ0JM-226	E CAPACITOR 22μF,6.3V
C1037		QEKJ1HM-225	E CAPACITOR 2.2μF,50V
C1038		QEKJ1HM-225	E CAPACITOR 2.2μF,50V
C1039		QEKJ1CM-476	E CAPACITOR 47μF,16V
C1040		NCB21HK-103X	CAPACITOR 0.01μF,50V
C1041		NDC21HG-301X	CAPACITOR 300pF,50V
C1042		NDC21HG-301X	CAPACITOR 300pF,50V
C1043		NDC21HG-221X	CAPACITOR 220pF,50V
C1044		NDC21HG-820X	CAPACITOR 82pF,50V
C1045		NCB21HK-103X	CAPACITOR 0.01μF,50V
C1046		NDC21HG-271X	CAPACITOR 270pF,50V
C1047		NDC21HJ-101X	CAPACITOR 100pF,50V
C1048		NDC21HJ-181X	CAPACITOR 180pF,50V
C1049		NDC21HG-301X	CAPACITOR 300pF,50V
C1050		NDC21HG-301X	CAPACITOR 300pF,50V
C1056		NCB21HK-103X	CAPACITOR 0.01μF,50V
C1057		NCB21HK-103X	CAPACITOR 0.01μF,50V
C1058		NCB21HK-103X	CAPACITOR 0.01μF,50V
C1063		NDC21HJ-101X	CAPACITOR 100pF,50V
C1064		NCB21HK-103X	CAPACITOR 0.01μF,50V
C1065		QEKJ0JM-227	E CAPACITOR 220μF,6.3V
C1066		NCB21EK-223X	CAPACITOR 0.022μF,25V
C1067		NCB21HK-103X	CAPACITOR 0.01μF,50V
C1068		QEKJ1HM-105	E CAPACITOR 1μF,50V
C1069		QEKJ1CM-106	E CAPACITOR 10μF,16V
C1070		NCB21HK-103X	CAPACITOR 0.01μF,50V
C1071		NCB21HK-103X	CAPACITOR 0.01μF,50V
C1072		NCB21HK-103X	CAPACITOR 0.01μF,50V
C1073		NDC21HJ-150X	CAPACITOR 15pF,50V

#	Δ REF No.	PART No.	PART NAME, DESCRIPTION
C1074		NCB21HK-103X	CAPACITOR 0.01μF,50V
C1082		NCB21HK-103X	CAPACITOR 0.01μF,50V
C1086		NCB21HK-103X	CAPACITOR 0.01μF,50V
C1087		NCB21HK-103X	CAPACITOR 0.01μF,50V
C1088		QEKJ1CM-103X	CAPACITOR 0.01μF,50V
C1089		NCB21HK-103X	CAPACITOR 0.01μF,50V
C1092		NCB21HK-103X	CAPACITOR 0.01μF,50V
C1095		NCB21HK-103X	CAPACITOR 0.01μF,50V
C1401		QEKJ1CM-336	E CAPACITOR 33μF,16V
C1402		NCB21HK-103X	CAPACITOR 0.01μF,50V
C1403		NCB21HK-103X	CAPACITOR 0.01μF,50V
C1404		NCB21HK-103X	CAPACITOR 0.01μF,50V
C1405		NDC21HJ-220X	CAPACITOR 22pF,50V
C1406		NDC21HJ-6R0X	CAPACITOR 6pF,50V
C1407		NDC21HJ-390X	CAPACITOR 39pF,50V
C1408		NCF21EZ-104X	CAPACITOR 0.1μF,25V
C1409		NCB21HK-103X	CAPACITOR 0.01μF,50V
C1410		QEKJ0JM-337	E CAPACITOR 330μF,6.3V
C1411		QEKJ1CM-106	E CAPACITOR 10μF,16V
C1412		NCF21EZ-104X	CAPACITOR 0.1μF,25V
C1413		NCF21EZ-104X	CAPACITOR 0.1μF,25V
C1414		NCB21HK-103X	CAPACITOR 0.01μF,50V
C1415		NDC21HJ-221X	CAPACITOR 220pF,50V
C1416		NDC21HJ-391X	CAPACITOR 390pF,50V
C1417		NDC21HJ-680X	CAPACITOR 68pF,50V
C1418		NDC21HJ-8R0X	CAPACITOR 8pF,50V
C1419		NCF21EZ-104X	CAPACITOR 0.1μF,25V
C1420		NCF21EZ-104X	CAPACITOR 0.1μF,25V
C1421		NDC21HJ-680X	CAPACITOR 68pF,50V
C1422		NDC21HJ-330X	CAPACITOR 33pF,50V
C1424		NCF21EZ-104X	CAPACITOR 0.1μF,25V
C1425		QEKJ0JM-337	E CAPACITOR 330μF,6.3V
C1426		NCB21HK-103X	CAPACITOR 0.01μF,50V
C1427		NCF21EZ-104X	CAPACITOR 0.1μF,25V
C1428		NCF21EZ-104X	CAPACITOR 0.1μF,25V
C1429		NCF21EZ-104X	CAPACITOR 0.1μF,25V
C1430		NCF21EZ-104X	CAPACITOR 0.1μF,25V
C1431		NCF21EZ-104X	CAPACITOR 0.1μF,25V
C1432		QEKJ1EM-475	E CAPACITOR 4.7μF,25V
C1433		NCF21EZ-104X	CAPACITOR 0.1μF,25V
C1434		QEKJ0JM-337	E CAPACITOR 330μF,6.3V
C1435		QEKJ1HM-105	E CAPACITOR 1μF,50V
C1436		NCF21EZ-104X	CAPACITOR 0.1μF,25V
C1437		NCF21EZ-104X	CAPACITOR 0.1μF,25V
C1438		NCF21EZ-104X	CAPACITOR 0.1μF,25V
C1439		NCF21EZ-104X	CAPACITOR 0.1μF,25V
C1440		NCF21EZ-104X	CAPACITOR 0.1μF,25V
C1441		NCF21EZ-104X	CAPACITOR 0.1μF,25V
C1442		NCF21EZ-104X	CAPACITOR 0.1μF,25V

#	△ REF No.	PART No.	PART NAME, DESCRIPTION	
C1458		NCB21HK-103X	CAPACITOR	0.01μF,50V
C1459		NDC21HJ-470X	CAPACITOR	47pF,50V
C1460		NDC21HJ-470X	CAPACITOR	47pF,50V
C1461		NDC21HJ-470X	CAPACITOR	47pF,50V
C1462		NDC21HJ-470X	CAPACITOR	47pF,50V
C1463		NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W
C1464		NDC21HJ-330X	CAPACITOR	33pF,50V
C1465		NDC21HJ-470X	CAPACITOR	47pF,50V
C1468		NDC21HJ-470X	CAPACITOR	47pF,50V
C1469		NDC21HJ-470X	CAPACITOR	47pF,50V
C1470		NDC21HJ-470X	CAPACITOR	47pF,50V
C1471		NDC21HJ-470X	CAPACITOR	47pF,50V
C1472		NDC21HJ-470X	CAPACITOR	47pF,50V
C1473		NDC21HJ-470X	CAPACITOR	47pF,50V
L1001		QQL29BJ-220Z	COIL	22μH
L1004		QQL071J-680Y	COIL	68μH
L1006		QQL29BJ-101Z	COIL	100μH
L1008		QQL29BJ-100Z	COIL	10μH
L1401		QQL071J-330Y	COIL	33μH
L1402		QQL29BJ-100Z	COIL	10μH
L1404		QQL071J-8R2Y	COIL	8.2μH
L1405		QQL071J-150Y	COIL	15μH
L1406		QQL071J-6R8Y	COIL	6.8μH
L1407		QQL29BJ-100Z	COIL	10μH
L1408		QQL29BJ-100Z	COIL	10μH
L1409		QQL071J-330Y	COIL	33μH
L1410		QQL29BJ-4R7Z	COIL	4.7μH
L1411		QQL071J-1R0Y	COIL	1μH
LC1401		QQR0657-013Z	NOISE FILTER	
LC1402		QQR0657-010Z	NOISE FILTER	
BK1		LP40077-001A	BRACKET(BOARD)	
SD1		LP30621-001A	SHIELD CASE(SVHS 3D)	
SD2		LP30406-001A	SHIELD PLATE(SVHS)	
CN1001		QGG2503K2-30	HEADER PIN	
CN1002		QGG2503K2-30	HEADER PIN	
CN1003		QGF1217F1-07	FPC CONNECTOR,(1-7)TERMINAL	

TERMINAL BOARD ASSEMBLY <06>

PW1	LPA10055-02A	TERMINAL BOARD ASSY
IC7101	BH7635S	IC
IC7102	MM1231XF	IC
Q7102	2SB1218A/QR/-X	TRANSISTOR
	or 2PA1576/R/-X	TRANSISTOR
	or 2SA1576A/QR/-X	TRANSISTOR
Q7103	2SB1218A/QR/-X	TRANSISTOR
	or 2SA1576A/QR/-X	TRANSISTOR
	or 2PA1576/R/-X	TRANSISTOR
Q7104	2SB1218A/QR/-X	TRANSISTOR
	or 2PA1576/R/-X	TRANSISTOR
	or 2SA1576A/QR/-X	TRANSISTOR
Q7107	2SB1218A/QR/-X	TRANSISTOR
	or 2SA1576A/QR/-X	TRANSISTOR
	or 2PA1576/R/-X	TRANSISTOR
Q7108	2SD1819A/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR

#	△ REF No.	PART No.	PART NAME, DESCRIPTION	
		or 2SC4081/QRS/-X	TRANSISTOR	
Q7109		2SD1819A/QRS/-X	TRANSISTOR	
		or 2SC4081/QRS/-X	TRANSISTOR	
		or 2PC4081/R/-X	TRANSISTOR	
Q7110		2SD1819A/QRS/-X	TRANSISTOR	
		or 2SC4081/QRS/-X	TRANSISTOR	
		or 2PC4081/R/-X	TRANSISTOR	
Q7111		UN5211	TRANSISTOR	
		or PDC114EU	TRANSISTOR	
		or RN1302	TRANSISTOR	
		or DTC114EU	TRANSISTOR	
Q7112		2SD1819A/QRS/-X	TRANSISTOR	
		or 2SC4081/QRS/-X	TRANSISTOR	
		or 2PC4081/R/-X	TRANSISTOR	
R7104		NRSA02J-750X	MG RESISTOR	75Ω, 1/10W
R7105		NRSA02J-750X	MG RESISTOR	75Ω, 1/10W
R7106		NRSA02J-750X	MG RESISTOR	75Ω, 1/10W
R7107		NRSA02J-750X	MG RESISTOR	75Ω, 1/10W
R7108		QRE123J-391X	RESISTOR	390Ω, 1/2W
R7109		NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W
R7110		QRE123J-391X	RESISTOR	390Ω, 1/2W
R7111		NRSA02J-101X	MG RESISTOR	100Ω, 1/10W
R7112		NRSA02J-181X	MG RESISTOR	180Ω, 1/10W
R7113		NRSA02J-431X	MG RESISTOR	430Ω, 1/10W
R7114		NRSA02J-471X	MG RESISTOR	470Ω, 1/10W
R7116		NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W
R7117		NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W
R7121		NRSA02J-750X	MG RESISTOR	75Ω, 1/10W
R7123		NRSA02J-101X	MG RESISTOR	100Ω, 1/10W
R7124		NRSA02J-101X	MG RESISTOR	100Ω, 1/10W
R7125		NRSA02J-101X	MG RESISTOR	100Ω, 1/10W
R7126		NRSA02J-101X	MG RESISTOR	100Ω, 1/10W
R7127		QRE141J-750Y	RESISTOR	75Ω, 1/4W
R7128		QRE141J-103Y	RESISTOR	10kΩ, 1/4W
R7129		NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W
R7130		NRSA02J-221X	MG RESISTOR	220Ω, 1/10W
R7131		QRE123J-391X	RESISTOR	390Ω, 1/2W
R7132		NRSA02J-680X	MG RESISTOR	68Ω, 1/10W
R7133		NRSA02J-332X	MG RESISTOR	3.3kΩ, 1/10W
R7134		NRSA02J-472X	MG RESISTOR	4.7kΩ, 1/10W
R7135		NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W
R7136		NRSA02J-272X	MG RESISTOR	2.7kΩ, 1/10W
R7137		NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W
R7138		NRSA02J-561X	MG RESISTOR	560Ω, 1/10W
R7139		NRSA02J-682X	MG RESISTOR	6.8kΩ, 1/10W
R7140		NRSA02J-750X	MG RESISTOR	75Ω, 1/10W
R7141		NRSA02J-101X	MG RESISTOR	100Ω, 1/10W
R7142		NRSA02J-101X	MG RESISTOR	100Ω, 1/10W
R7143		NRSA02J-750X	MG RESISTOR	75Ω, 1/10W
R7144		NRSA02J-750X	MG RESISTOR	75Ω, 1/10W
R7145		NRSA02J-101X	MG RESISTOR	100Ω, 1/10W
R7146		NRSA02J-101X	MG RESISTOR	100Ω, 1/10W
R7147		NRSA02J-222X	MG RESISTOR	2.2kΩ, 1/10W
R7149		NRSA02J-223X	MG RESISTOR	22kΩ, 1/10W
R7157		NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W
R7162		NRSA02J-101X	MG RESISTOR	100Ω, 1/10W
C7102		QETJ0JM-477	E CAPACITOR	470pF, 6.3V
C7103		NCB21HK-103X	CAPACITOR	0.01μF, 50V
C7104		QEKJ1CM-476	E CAPACITOR	47μF, 16V
C7105		NCB21HK-103X	CAPACITOR	0.01μF, 50V
C7106		NCB21HK-223X	CAPACITOR	0.022μF, 50V

#	△ REF No.	PART No.	PART NAME, DESCRIPTION	
C7108		NCB21HK-223X	CAPACITOR	0.022μF, 50V
C7109		QEKJ1CM-476	E CAPACITOR	47μF, 16V
C7110		NCB21HK-103X	CAPACITOR	0.01μF, 50V
C7112		NDC21HJ-330X	CAPACITOR	33pF, 50V
C7113		NCB21HK-223X	CAPACITOR	0.022μF, 50V
C7114		NCB21HK-223X	CAPACITOR	0.022μF, 50V
C7115		NCB21HK-681X	CAPACITOR	680pF, 50V
C7116		NCB21HK-681X	CAPACITOR	680pF, 50V
C7119		NCB21HK-102X	CAPACITOR	0.001μF, 50V
C7120		NCB21HK-102X	CAPACITOR	0.001μF, 50V
C7124		QEKJ1CM-476	E CAPACITOR	47μF, 16V
C7125		QEKJ1CM-476	E CAPACITOR	47μF, 16V
C7126		NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W
C7127		NCB21HK-103X	CAPACITOR	0.01μF, 50V
C7128		NCB21HK-681X	CAPACITOR	680pF, 50V
C7129		NCB21HK-681X	CAPACITOR	680pF, 50V
C7133		NCB21HK-102X	CAPACITOR	0.001μF, 50V
C7134		NCB21HK-102X	CAPACITOR	0.001μF, 50V
C7137		QEKJ1CM-107	E CAPACITOR	100μF, 16V
C7138		NCB21HK-103X	CAPACITOR	0.01μF, 50V
C7139		NCB21HK-103X	CAPACITOR	0.01μF, 50V
C7140		NCB21HK-103X	CAPACITOR	0.01μF, 50V
C7142		NCB21HK-103X	CAPACITOR	0.01μF, 50V
C7143		QEKJ1CM-106	E CAPACITOR	10μF, 16V
C7144		NCB21HK-103X	CAPACITOR	0.01μF, 50V
C7146		NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W
C7147		QEKJ1CM-106	E CAPACITOR	10μF, 16V
C7148		NDC21HJ-101X	CAPACITOR	100pF, 50V
C7150		NCB21HK-102X	CAPACITOR	0.001μF, 50V
C7152		NCB21HK-102X	CAPACITOR	0.001μF, 50V
C7158		NDC21HJ-470X	CAPACITOR	47pF, 50V
C7161		QEKJ1CM-476	E CAPACITOR	47μF, 16V
L7105		QQL231J-1R0Y	COIL	1μH
L7107		QQL231J-R22Y	COIL	0.22μH
L7108		QQL231J-4R7Y	COIL	4.7μH
L7109		QQL231J-4R7Y	COIL	4.7μH
L7110		QQL231J-4R7Y	COIL	4.7μH
L7111		QQL231J-4R7Y	COIL	4.7μH
L7112		QQL231J-1R0Y	COIL	1μH
L7113		QQL231J-4R7Y	COIL	4.7μH
L7114		QQL231J-4R7Y	COIL	4.7μH
L7115		QQL231J-4R7Y	COIL	4.7μH
L7116		QQL231J-4R7Y	COIL	4.7μH
L7121		QQL231J-4R7Y	COIL	4.7μH
L7123		QQL231J-4R7Y	COIL	4.7μH
SW7101		QSW0693-001	SLIDE SWITCH	
ET1		PQ21987-1-1	EARTH PLATE(TERMINAL)	
△ TB1		LP30562-002A	TERMINAL BOARD ASSY	
OT1		QYDSF3008Z	SCREW,X8	
J7101		PEMC1177	RGB21PIN SOCKET,AV1	
J7102		PEMC1177	RGB21PIN SOCKET,AV2	
J7103		QNN0023-002	PIN JACK,A.OUT(R)	
J7104		QNN0023-003	PIN JACK,A.OUT(L)	
J7107		QND0009-001	S JACK,S OUT	
J7110		PU60659	MINI JACK,R.PAUSE	
CN7101		QGB2024J1-09S	CONNECTOR,(1-9)MAIN	
CN7102		QGB2024J1-10S	CONNECTOR,(1-10)MAIN	
CN7103		QGB2024J1-10S	CONNECTOR,(1-10)MAIN	
CN7104		QGF1208F1-07	FPC CONNECTOR,(1-7)	
CN7105		QGF1208F1-04	FPC CONNECTOR,(1-4)	

#	△ REF No.	PART No.	PART NAME, DESCRIPTION
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AUDIO CONTROL HEAD BOARD ASSEMBLY <12>

PW1	LPA10010-01A1	A/C HEAD BOARD ASSY
CN1	QGF1208F1-07	FPC CONNECTOR

DEMOD BOARD ASSEMBLY <14>

PW1	LPA10021-03B	DEMOD BOARD ASSY	
IC8701	MSP34VCD	IC	
	or MSP3415D	IC	
Q6701	2SC3068	TRANSISTOR	
Q6702	2SC3354/TS-T	TRANSISTOR	
Q6704	DTC114EU	TRANSISTOR	
	or UN5211	TRANSISTOR	
	or PDC114EU	TRANSISTOR	
Q6705	DTC114EU	TRANSISTOR	
	or UN5211	TRANSISTOR	
	or PDC114EU	TRANSISTOR	
D6702	MTZJ9.1B	ZENER DIODE	
D6703	1N4148M	DIODE	
	or 1SS133	DIODE	
D6704	1N4148M	DIODE	
	or 1SS133	DIODE	
R6701	NRSA02J-101X	MG RESISTOR	100Ω, 1/10W
R6702	NRSA02J-101X	MG RESISTOR	100Ω, 1/10W
R6703	NRSA02J-271X	MG RESISTOR	270Ω, 1/10W
R6704	NRSA02J-101X	MG RESISTOR	100Ω, 1/10W
R6705	NRSA02J-472X	MG RESISTOR	4.7kΩ, 1/10W
R6706	NRSA02J-392X	MG RESISTOR	3.9kΩ, 1/10W
R6707	NRSA02J-470X	MG RESISTOR	47Ω, 1/10W
R6708	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W
R6709	NRSA02J-271X	MG RESISTOR	270Ω, 1/10W
R6710	NRSA02J-151X	MG RESISTOR	150Ω, 1/10W
R6712	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W
R6713	NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W
R6714	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W
R6715	NRSA02J-223X	MG RESISTOR	22kΩ, 1/10W
R6716	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W
R6717	NRSA02J-223X	MG RESISTOR	22kΩ, 1/10W
R6718	NRSA02J-684X	MG RESISTOR	680kΩ, 1/10W
C8703	QEKJ1CM-336	E CAPACITOR	33μF, 16V
C8704	QEKJ1CM-107	E CAPACITOR	100μF, 16V
C8705	NCB21HK-103X	CAPACITOR	0.01μF, 50V
C8706	NCB21HK-223X	CAPACITOR	0.022μF, 50V
C8707	NCB21HK-103X	CAPACITOR	0.01μF, 50V
C8708	NCB21HK-103X	CAPACITOR	0.01μF, 50V
C8709	QEKJ1CM-336	E CAPACITOR	33μF, 16V
C8710	NCB21HK-682X	CAPACITOR	0.0068μF, 50V
C8711	NCB21HK-682X	CAPACITOR	0.0068μF, 50V
C8712	QEKJ1HM-225	E CAPACITOR	2.2μF, 50V
C8713	QEKJ1HM-225	E CAPACITOR	2.2μF, 50V
C8714	NCF21CZ-224X	CAPACITOR	0.22μF, 16V
C8717	NCB21HK-223X	CAPACITOR	0.022μF, 50V
C8718	QEKJ1CM-336	E CAPACITOR	33μF, 16V
C8719	QEKJ1CM-106	E CAPACITOR	10μF, 16V

#	△ REF No.	PART No.	PART NAME, DESCRIPTION	
C6720		QEKJ1CM-106	E CAPACITOR	10μF,16V
C6721		NCB21HK-103X	CAPACITOR	0.01μF,50V
C6722		QEKJ1CM-106	E CAPACITOR	10μF,16V
C6723		NCB21HK-103X	CAPACITOR	0.01μF,50V
C6727		NDC21HJ-470X	CAPACITOR	47pF,50V
C6728		NDC21HJ-470X	CAPACITOR	47pF,50V
C6729		NDC21HJ-8R0X	CAPACITOR	8pF,50V
C6730		NDC21HJ-1R0X	CAPACITOR	1pF,50V
L6701		QQL29BK-1R0Z	COIL	1μH
L6702		QQL29BJ-3R3Z	COIL	3.3μH
L6703		QQL231J-390Y	COIL	39μH
L6704		QQL29BK-1R0Z	COIL	1μH
L6705		QQL231J-100Y	COIL	10μH
LC6701		QQR0657-013	NOISE FILTER	
X6701		QAX0443-001	CRYSTAL RESONATOR	
BK1		LP40077-001A	BRACKET(BOARD)	
CN6701		QGG2502K1-11	HEADER PIN(1-11)	

SW/DISPLAY BOARD ASSEMBLY <28>

PW1	LPA10054-07C1	DISPLAY BOARD ASSY	
IC7001	M35500BGP	IC	
	or M35500AGP	IC	
	or M35500BFP	IC	
IC7002	PNA4652M00XB	IR DETECT UNIT	
	or GP1U281X	IR DETECT UNIT	
D7002	RD9.1ES/B2/-T2	ZENER DIODE	
	or MTZJ9.1B	ZENER DIODE	
	or UZ9.1BSB	ZENER DIODE	
D7005	1SS133	DIODE	
D7006	1SS133	DIODE	
D7010	SLR-342VC3F	LE DIODE	
D7011	SLR-342MC3F	LE DIODE	
R7001	QRE141J-471Y	RESISTOR	470Ω, 1/4W
R7002	QRE141J-471Y	RESISTOR	470Ω, 1/4W
R7003	QRE141J-471Y	RESISTOR	470Ω, 1/4W
R7004	QRE141J-471Y	RESISTOR	470Ω, 1/4W
R7005	QRE141J-103Y	RESISTOR	10kΩ, 1/4W
R7006	QRE141J-103Y	RESISTOR	10kΩ, 1/4W
R7007	QRE141J-103Y	RESISTOR	10kΩ, 1/4W
R7008	QRE141J-103Y	RESISTOR	10kΩ, 1/4W
R7009	QRE141J-153Y	RESISTOR	15kΩ, 1/4W
R7010	QRE141J-153Y	RESISTOR	15kΩ, 1/4W
R7011	QRE141J-393Y	RESISTOR	39kΩ, 1/4W
R7013	QRE141J-103Y	RESISTOR	10kΩ, 1/4W
R7020	QRE141J-103Y	RESISTOR	10kΩ, 1/4W
R7021	QRE141J-122Y	RESISTOR	1.2kΩ, 1/4W
R7022	QRE141J-182Y	RESISTOR	1.8kΩ, 1/4W
R7023	QRE141J-222Y	RESISTOR	2.2kΩ, 1/4W
R7024	QRE141J-272Y	RESISTOR	2.7kΩ, 1/4W
R7025	QRE141J-472Y	RESISTOR	4.7kΩ, 1/4W
R7026	QRE141J-682Y	RESISTOR	6.8kΩ, 1/4W
R7027	QRE141J-153Y	RESISTOR	15kΩ, 1/4W
R7028	QRE141J-393Y	RESISTOR	39kΩ, 1/4W
R7030	QRE141J-103Y	RESISTOR	10kΩ, 1/4W
R7031	QRE141J-122Y	RESISTOR	1.2kΩ, 1/4W

#	△ REF No.	PART No.	PART NAME, DESCRIPTION	
R7032		QRE141J-182Y	RESISTOR	1.8kΩ, 1/4W
R7033		QRE141J-222Y	RESISTOR	2.2kΩ, 1/4W
R7034		QRE141J-272Y	RESISTOR	2.7kΩ, 1/4W
R7035		QRE141J-472Y	RESISTOR	4.7kΩ, 1/4W
R7036		QRE141J-682Y	RESISTOR	6.8kΩ, 1/4W
R7037		QRE141J-153Y	RESISTOR	15kΩ, 1/4W
R7038		QRE141J-393Y	RESISTOR	39kΩ, 1/4W
R7041		QRE141J-331Y	RESISTOR	330Ω, 1/4W
R7042		QRE141J-331Y	RESISTOR	330Ω, 1/4W
C7001		QCFB1HZ-104	CAPACITOR	0.1μF,50V
C7002		QETC1HM-106	E CAPACITOR	10μF,50V
C7007		QETN1HM-476	E CAPACITOR	47μF,50V
C7009		QCSB1HJ-150	CAPACITOR	15pF,50V
C7010		QCFB1HZ-104	CAPACITOR	0.1μF,50V
C7011		QETN1AM-227	E CAPACITOR	220μF,10V
C7019		QDVB1EZ-223Y	CAPACITOR	0.022μF,25V
C7192		QCB81HJ-681	CAPACITOR	680pF,50V
C7194		QCB81HJ-681	CAPACITOR	680pF,50V
L7191		QRE141J-101Y	RESISTOR	100Ω, 1/4W
L7192		QRE141J-101Y	RESISTOR	100Ω, 1/4W
L7196		QQL231J-1R0Y	COIL	1μH
S7001		QSW0456-002Z	TACT SWITCH,POWER	
S7002		QSW0456-002Z	TACT SWITCH,CH+	
S7003		QSW0456-002Z	TACT SWITCH,CH-	
S7004		QSW0456-002Z	TACT SWITCH,REC	
S7005		QSW0456-002Z	TACT SWITCH,PAUSE	
S7010		QSW0456-002Z	TACT SWITCH,TBC	
S7011		QSW0456-002Z	TACT SWITCH,REVIEW	
S7012		QSW0456-002Z	TACT SWITCH,C.RESET	
S7013		QSW0456-002Z	TACT SWITCH,REC LINK	
S7014		QSW0456-002Z	TACT SWITCH,STOP/EJECT	
S7015		QSW0456-002Z	TACT SWITCH,PLAY	
S7016		QSW0456-002Z	TACT SWITCH,SP/LP	
S7017		QSW0456-002Z	TACT SWITCH,A.DUB	
DI7001		QLF0032-002	FL TUBE	
HD1		PQ34668	FDP HOLDER(L),DI7001	
HD2		PQ34669	FDP HOLDER(R),DI7001	
HD4		PQM30038-7	LED HOLDER,D7010	
HD5		PQM30038-7	LED HOLDER,D7011	
J7191		PEMC1009-04	PIN JACK,VIDEO IN	
J7192		PEMC1010-03	PIN JACK(SW),A(L)IN	
J7193		PEMC1010-02	PIN JACK(SW),A(R)IN	
CN7001		QGF1207C1-14	FPC CONNECTOR,(1-14)MAIN	
CN7191		QGF1207C1-05	FPC CONNECTOR,(3-7)MAIN	

REC SAFETY BOARD ASSEMBLY <32>

PW2	LPA10054-01C2	REC SAFETY BOARD ASSY	
S7041	QSW0602-003	PUSH SWITCH	
FW7001	QUM032-07A4A4	PARA RIBON WIRE	

#	△ REF No.	PART No.	PART NAME, DESCRIPTION	#	△ REF No.	PART No.	PART NAME, DESCRIPTION

JACK BOARD ASSEMBLY <36>

PW4	LPA10054-07C4	JACK BOARD ASSY	
J7194	QND0009-001	S JACK,S VIDEO	
CN7192	QGF1207F1-04	FPC CONNECTOR(1-4)MAIN	

JOG BOARD ASSEMBLY <37>

PW3	LPA10054-03C3	JOG BOARD ASSY	
UN7091	PEME0786-02	JOG SHUTTLE ASSY	
CN7005	QGF1207F1-06	FPC CONNECTOR,(1-6)MAIN	

LOADING MOTOR BOARD ASSEMBLY <55>

PW2	LPA10010-01A2	LOADING MOTOR BOARD ASSY	
C1	QFV61HJ-104	F CAPACITOR	0.1μF,50V
OT1	PU59915-105	#500SPACER0.01,C1	
CN1	QGB2533K1-02	CONNECTOR	